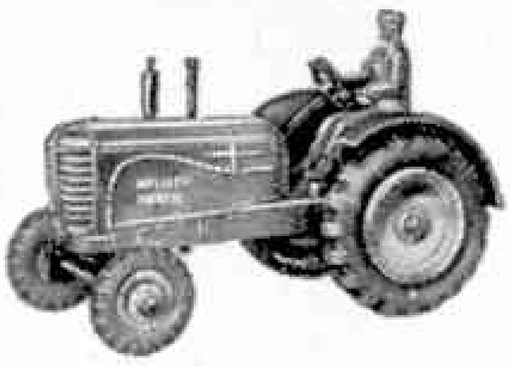
VOL. XXXIII. No. 10. OCTOBER 1948

MECCANO MAGAZINE

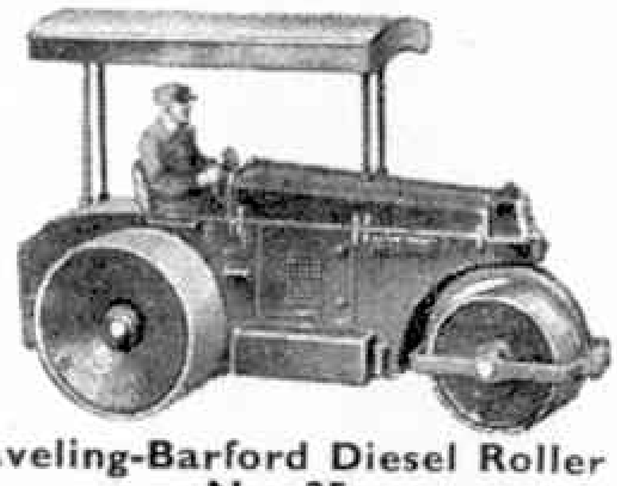
THE "KANGAROO" SERVICE

6D.

DINKY TOYS



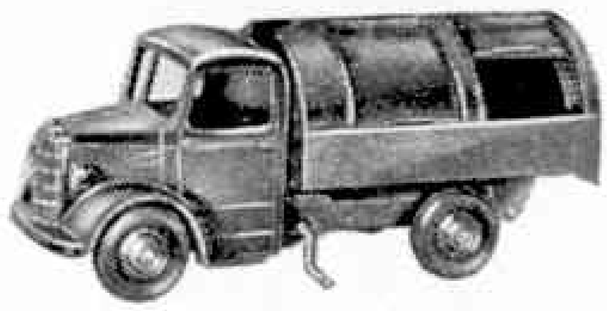
Massey-Harris Farm Tractor
No. 27a
Price **5/-** each (including tax)



Aveling-Barford Diesel Roller
No. 25p
Price **5/3** each (including tax)

Forward Control Lorry
No. 25r
Price **2/6** each (including tax)

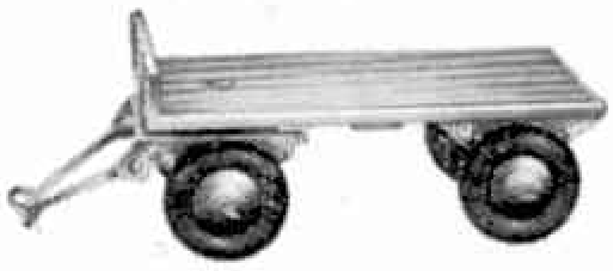
NEW



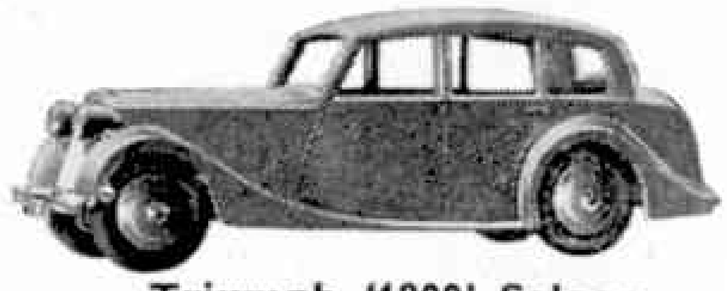
Bedford Refuse Wagon
No. 25v
Sliding covers,
tipping mechanism,
opening rear door
Price **5/6** each (including tax)

B.E.V. Electric Truck
No. 14a
Price **3/3** each (including tax)

Bedford End Tipper
No. 25m
Price **5/3** each (including tax)



Trailer
No. 25g
Price **1/6** each (including tax)



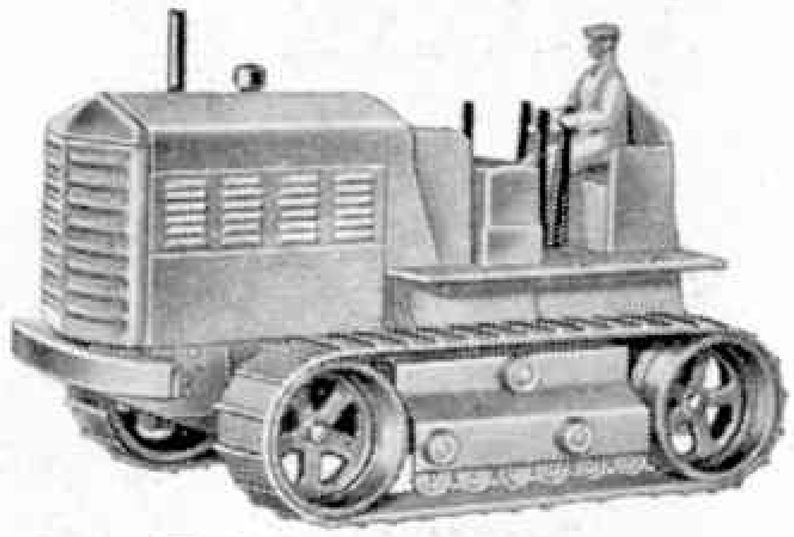
Triumph '1800' Saloon
No. 40b
Price **2/6** each (including tax)

DINKY SUPERTOYS

Dinky Supertoys No. 562 Dumper Truck
Adjustable front wheels, tipping bucket,
reversible driving seat
Price **9/-** each (including tax)

Dinky Supertoys No. 502
Foden Flat Truck
Price **9/6** each (including tax)

Dinky Supertoys No. 521
Bedford Articulated Lorry
Price **6/9** each (including tax)



Dinky Supertoys No. 563
Heavy Tractor
Price **6/9** each (including tax)

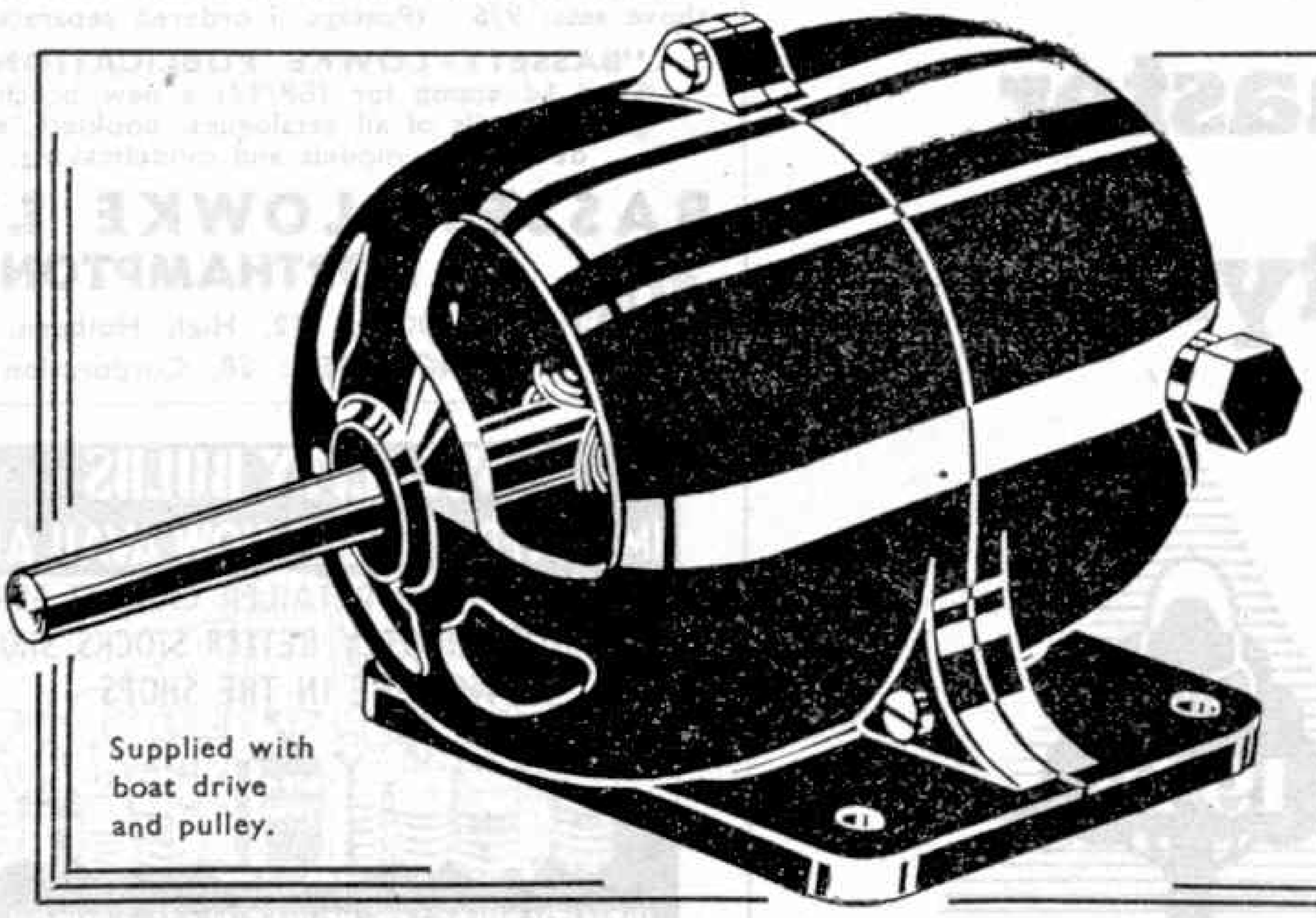
MADE IN ENGLAND BY MECCANO LIMITED

FROG

TRADE MARK

The New "Whirlwind"

6 VOLT DIRECT CURRENT ENCLOSED TYPE ELECTRIC MOTOR



Supplied with boat drive and pulley.

A brand new design of electric motor, suitable for installation in all types of models. The outer case is of the latest type, precision made in plastic, with the main bearings and brush holders incorporated in the moulding. A laminated armature, wound on an I.M.A. Ltd. designed machine, together with the FROG low friction commutator and carbon brushes ensure a fine performance.

Important developments in the new "Whirlwind" are the "ALNICO" ring magnet for extreme simplicity and high efficiency, and the special "RESERVOIL" self-lubricating bronze main bearings for frictionless running.

The "Whirlwind" is normally operated on a Direct Current supply of 6 volts but will give an efficient power output on any D.C. supply of between 4 and 9 volts. On 6 volts it develops over 6,000 r.p.m. at a current consumption of approximately .25 amps.

15/-

Order from your local dealer—
We cannot supply direct

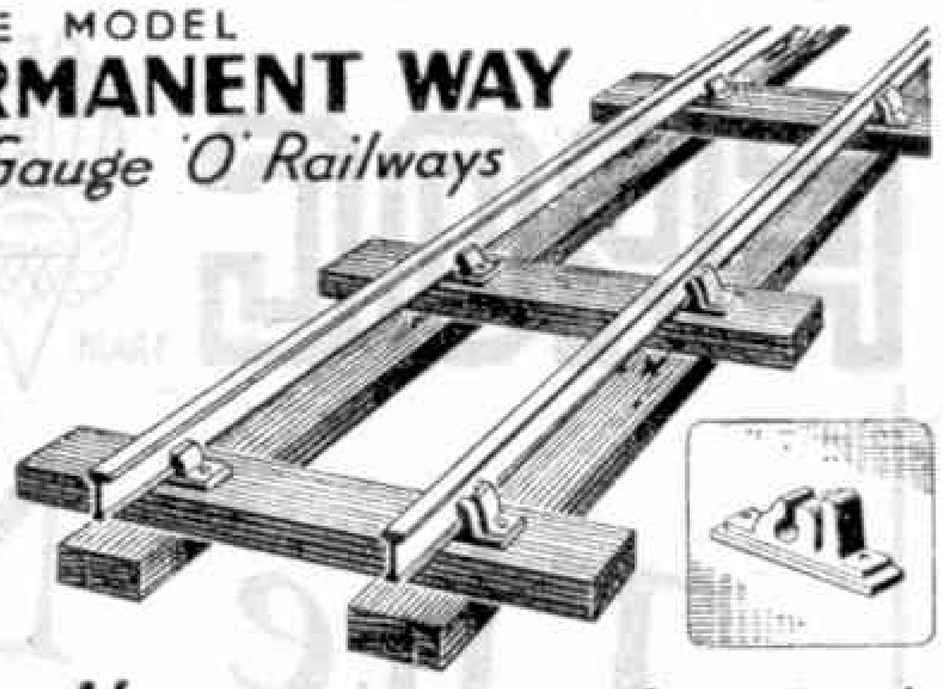
MADE IN ENGLAND BY

INTERNATIONAL MODEL AIRCRAFT LTD · MERTON · LONDON · SW · 19

DUNLOP

the world's master tyre

SCALE MODEL
PERMANENT WAY
for Gauge 'O' Railways



NOW AVAILABLE from Stock

Easily the most realistic, durable and quietest running track made (note the new slide-on chair—an exact fit on rail). Available with book of instructions and special jigs for easy assembly.

Complete set of parts for constructing 18 feet of track—with brass rails, £1/6/6—with steel rails, 19/6. Postage on either set, 1/3.

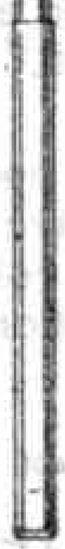
Brass conductor rail and parts for electrifying the above sets: 9/6. (Postage if ordered separately, 9d.)

"BASSETT-LOWKE PUBLICATIONS"
Send 1d. stamp for (BP/17) a new brochure giving details of all catalogues, booklets, etc., devoted to models and modelmaking.

BASSETT-LOWKE LTD.
NORTHAMPTON
LONDON: 112, High Holborn, W.C.1
MANCHESTER: 28, Corporation Street

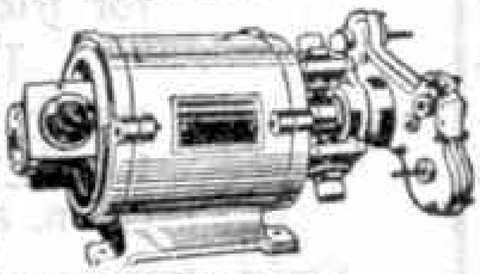
VITALITY BULBS
IMPROVED SUPPLIES NOW AVAILABLE
ADVISE IF YOUR RETAILER CANNOT SUPPLY BECAUSE SLIGHTLY BETTER STOCKS SHOULD NOW BE IN THE SHOPS

VITALITY BULBS LTD. NEVILLE PLACE LONDON. N.22.



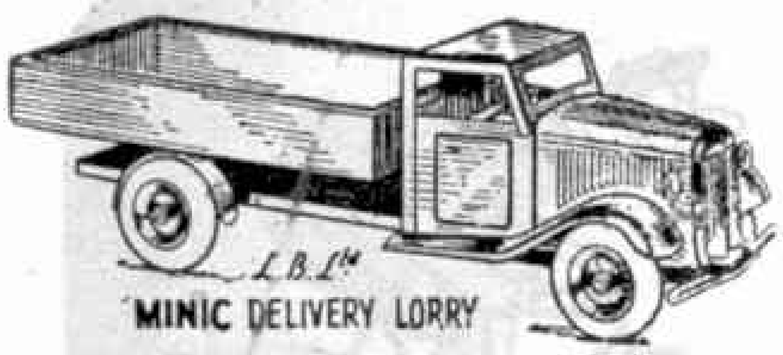
TELESCOPIC DINGHY MAST (Ex. R.A.F.)
Telescopic Aluminium, 15 in. long, opens to 9 ft. Terrifically strong, yet weighs less than ½ lb. Makes ideal fishing rod, etc., **10s. 6d.,** post free.
GLASS PRISMS, small, as fitted in opera glasses, etc., **1s. 6d.** pair.

MAINS OR BATTERY MOTOR



Fitted with reduction gear box, ideal for driving small to medium size models. Runs off 6 or 12 volt batteries, or 200-230 A.C. or D.C. mains.
Size approx. 8 in. x 4 in. x 4 in., **30/-.**

MERRIBULL PRODUCTS
88, Cromwell House, Wood End Green Road, Hayes, Middlesex



In Cairo, Chicago, Singapore, Johannesburg

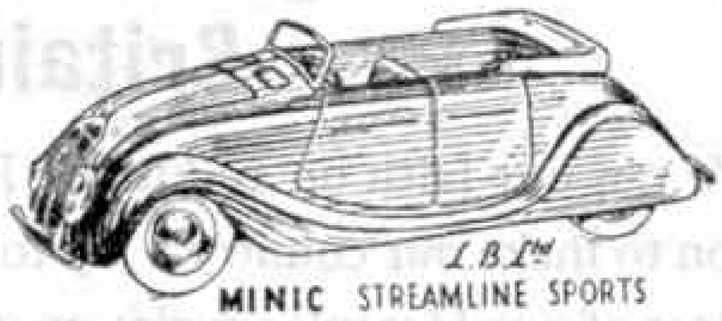
in fact all over the Globe

YOUNGSTERS PREFER

MINIC

ALL – TO – SCALE

CLOCKWORK TOYS



Realistic — they are actual scale models of vehicles on the road . . . . . beautifully finished in gleaming colours . . . speedy and reliable, as they are fitted powerful clockwork units . . . . . built by modern processes to ensure quality and long service . . . . . and offered at most reasonable prices.

In view of their overseas popularity there are not always sufficient supplies in toy shops in Great Britain, so be patient with your toy shop if they are temporarily out of stock.

JUST SOME OF THE NUMEROUS POPULAR

Tri-ang

REGD TRADE MARK

Toys

Manufactured by:

LINES BROS. LTD., LONDON S.W.19., ENGLAND

The Hercules angle

—rebuilding Britain . . .

We pin our faith on Industrial Production to make our country a joy to live in. Most of our Hercules cycles go overseas in return for the food and materials we need, but we are doing our utmost to increase our production (already the world's largest) so that your Hercules dealer can say, "I've a Hercules cycle your frame size — one in your favourite colour". Please keep in touch with him.

Hercules

the finest Bicycle built to-day

At new Reduced Prices

The Hercules Cycle & Motor Co. Ltd., Aston, Birmingham

H/2-BG

DX15B

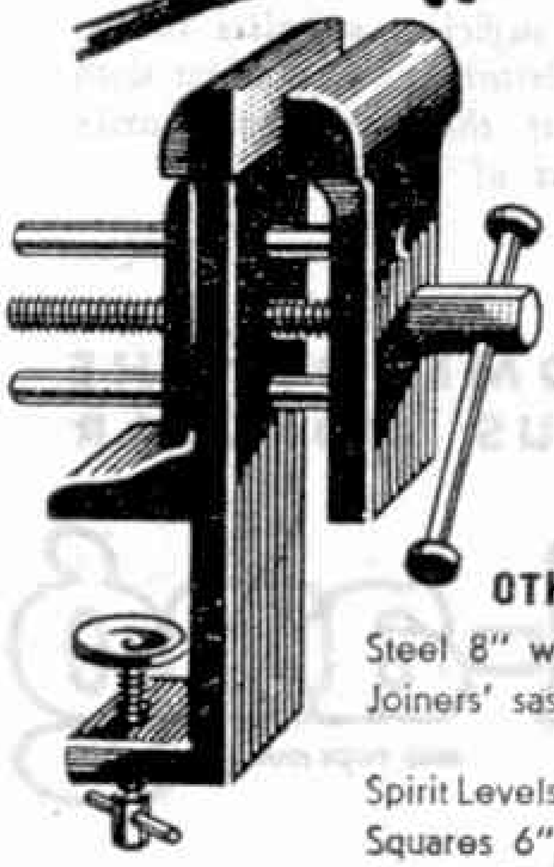
NO NEED TO HURRY HOME BEFORE DARK

Rely on Drydex Cycle Batteries

Longer Life—Stronger Beam

Issued by The Chloride Electrical Storage Co. Ltd

WORKSHOP FACILITIES INDOORS!



Clamps on to Ordinary Table Top

STRONG RIGID Precision Built TABLE VICE

OTHER TOOLS AVAILABLE

Steel 8" wood workers' vice ...	28/6
Joiners' sash clamps 24" to 48"	18/- to 21/6
Spirit Levels 9" Rosewood Rectangular	5/6
Squares 6" Rosewood	6/3
Bevels 9" Rosewood	7/11

Send for list of other tools available—Cash with order

Graham Martin

TRADING CO. LTD.

57, Ontario Street
London S.E.1

GAMAGES

Amazing offer of the famous "WALTOOL"

MINIATURE MODEL MACHINES

AT LESS THAN HALF-PRICE!

MAKER'S ENTIRE STOCK OF THESE SUPERB LITTLE MODELS. Specially designed for the use of Model and Instrument Makers, Jewellers and Watch Repairers, etc. Perfect in every detail. Easily incorporated with Meccano Models. Can be driven by 1/50 H.P. Motor. All parts can be replaced.

Model Dept. First Floor.

GRINDING MACHINES

Overall height 3 in. Dia. Grinding Wheel ¾ x ¼ in.

With a speed of 3,000 r.p.m. these machines are very suitable for the grinding of many small tools, such as small Drills, Taps, Countersinks and even Penknives and Nail-scissors, etc. 2 Grades of Grinding Wheels are supplied with this very useful little Machine-tool. Complete with belt and Driving-pulley.

Post & Pkg. 6d.

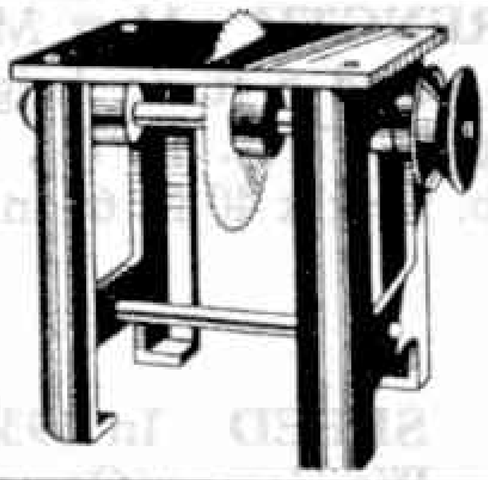
Gamages Price 7/11

CIRCULAR SAW BENCH

Overall height 2¼ in.

An admirable little tool for a multitude of purposes, it can be rotated up to speeds of 2,000 r.p.m. When coupled to an adequate drive and with belt tension, strips of wood up to 3/16 in. can be cut. Ideal for the modelmaker who uses wood for his medium for model Boats, Aeroplanes, etc.

Post & Pkg. 6d. **Gamages Price 7/11**



DRILLING MACHINES

Overall height 6½ in.

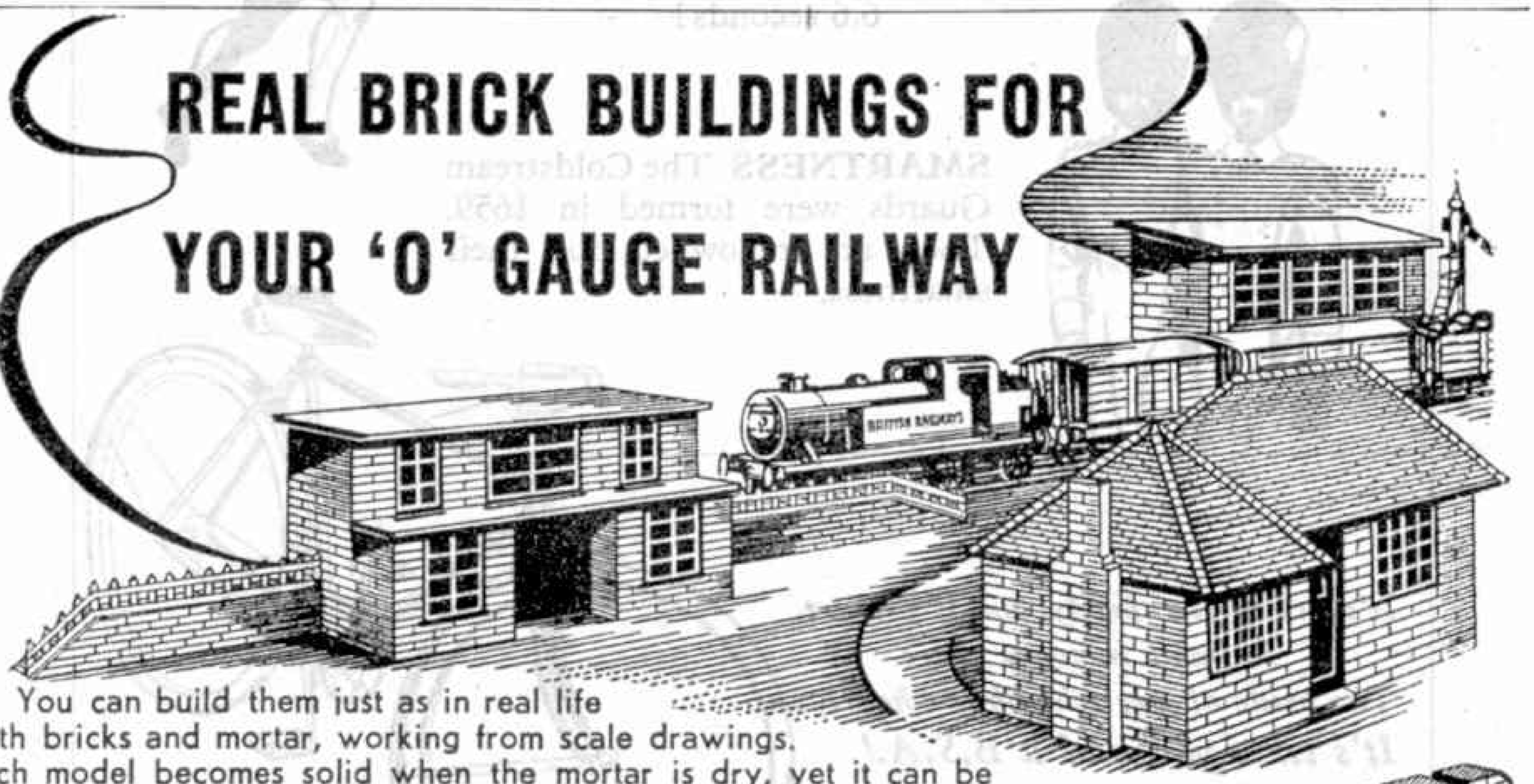
This machine, arranged for three speeds, can be fitted with a set of drills varying from 0.020 in. (0.5 m.m.) to 0.055 in. (1.40 m.m.) Speeds up to 2,500 r.p.m. can be used. Complete Belt & 3-speed Driving-Pulley.

7/11

Post & Pkg. 6d.

GAMAGES, HOLBORN, LONDON E.C.1 **London's Model Headquarters**

REAL BRICK BUILDINGS FOR YOUR 'O' GAUGE RAILWAY



You can build them just as in real life with bricks and mortar, working from scale drawings. Each model becomes solid when the mortar is dry, yet it can be quickly dismantled by soaking in cold water and the bricks used again.

BRICKPLAYER is obtainable complete with bricks and cement, metal windows and doors, roofs, etc., and full size working plans at 23/10 and 44/- inclusive of purchase tax, from good toy shops and stores.

If your toy dealer or store should be unable to supply, write for address of nearest stockist to:

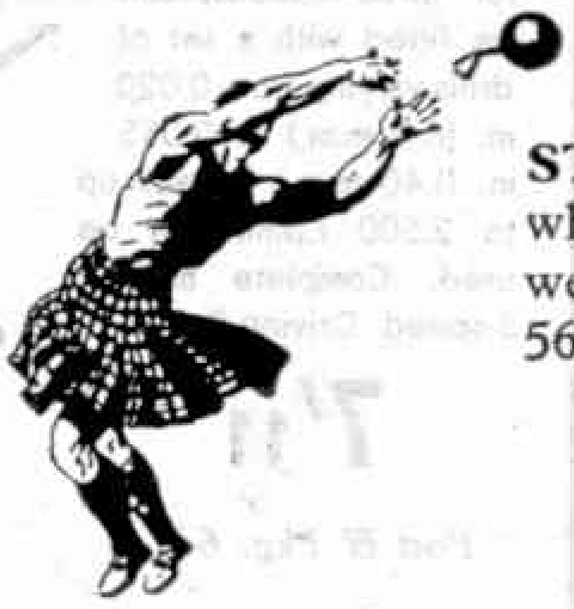
J. W. SPEAR & SONS LTD.
ENFIELD, MIDDLESEX

BRICKPLAYER

THE BRICK AND MORTAR BUILDING KIT

BSA *facts on*

STRENGTH, SPEEDINESS AND SMARTNESS



STRENGTH Matt McGrath, who stood 6 ft. in height, and weighed 17 st. 10 lb., threw a 56 lb. weight 40 ft. 6⅜ in.!

SPEED In 1937, S. C. Wooderson (Great Britain) ran the mile in 4 minutes, 6.6 seconds!

SMARTNESS The Coldstream Guards were formed in 1659. They are renowned for their smartness.

It's strong, it's speedy, and it's smart,
Reliable in every way;
The pride of any schoolboy's heart,
It's time you had a B.S.A.!

Free — Fully-Illustrated Catalogue! Just send a postcard to

B.S.A. CYCLES LTD., 31 ARMOURY ROAD, BIRMINGHAM, 11.

Next Month: "BRITISH JET AIRCRAFT." By J. W. R. Taylor

MECCANO MAGAZINE

Editorial Office:
Binns Road
Liverpool 13
England

Vol. XXXIII
No. 10
October 1948

With the Editor

A Trolley Bus Mystery

To many small boys it is a mystery how tramcars find the right direction when they come to points where two routes diverge. As they grow older they realise that the driver does the selecting, the tramcar following one route when he keeps the power on, and the other when he cuts it off, the effect in each case being to place the electrically operated points as required.

There is a similar problem with trolley buses, but the points here are on the overhead wires. At first the conductor of a bus had to get out and pull a handle on one of the supporting posts if the points had to be changed, and the bus had to make a second stop to await his return. Later the points were electrically operated, and the conductor only had to press a button on the post. Now the button pressing can be done by the driver in his cab as he approaches the points, and thus we have the apparent miracle of the trolleys of a bus taking the right direction on the wires apparently of their own accord.

This change is a radio development. When the driver presses a button to select his route he is really operating a radio transmitter that conveys signals to a loop aerial mounted above the points, and the current induced in this aerial operates the points through relays.

London Transport has one bus equipped with a transmitter, and a set of points in the Croydon district has been provided with the necessary receiver. The apparatus works perfectly, and all that remains to be tested is whether it will continue to be serviceable in practice over sufficiently long periods. Apparently the only replacement that should be necessary is the one valve used, which costs about 6/– and has to be renewed after about six months.

New Winter Trains

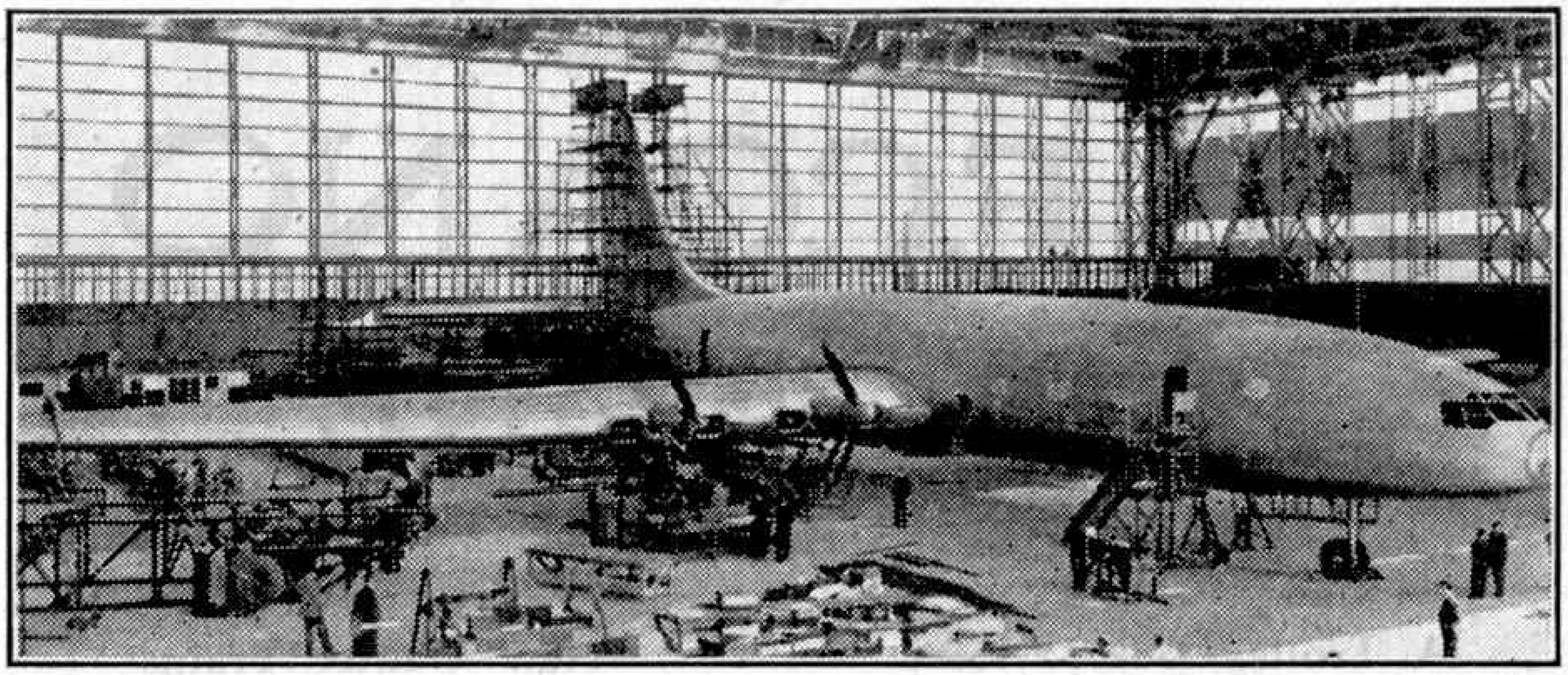
British Railways winter services, which began on 27th September, have introduced two new named trains—"*The Norfolkman*" between London and Norwich, and "*The Tees-Tyne Pullman*" between London and Newcastle. The new services include also many summer trains that are being retained and others that will run each weekday instead of at week-ends only. In addition various accelerations of trunk and local services have been made.

In spite of the fact that there are still nearly 5,000 fewer passenger coaches fit for traffic than in pre-war days, 91 new main line services are being operated. Additional suburban services are provided in the London area, and there are more trains having restaurant or sleeping cars.

This Month's Contents

	Page
Aircraft of the Future .. .. by C. G. Grey	330
An Unusual Tender Water Gauge	333
Modern Mobile Cranes	334
By "*Kangaroo*" to Australia .. by John W. R. Taylor	337
Ancient Crafts of Buckinghamshire by E. Davies	340
Romance of Ship Names .. .. by Frank C. Bowen	342
Dinky Toys and Supertoys ..	345
Electrolytic Tinplating by M. Lorant	348
How Does a Mechanical Stoker Work? by "Shed Superintendent" ..	350

Air News, 346. Books to Read, 347. Club and Branch News, 353. Competitions and Results, 364–5. Fireside Fun, 367. From Our Readers, 351. H.R.C. Pages, 358–9. New Meccano Models, 356, Among the Model-Builders, 354, Model-Building Competition, 357. On Road and Track, 336. Photography, 352. Railway Notes, 338. Stamp Pages, 361, 363.



The Bristol "Brabazon" I under construction. It has a wing span of 230 ft. and will be the largest landplane built in this country. The illustrations to this article are by courtesy of The Bristol Aeroplane Co. Ltd.

Aircraft of the Future

A Check to Imagination Needed

By C. G. Grey

WHEN one speaks of aircraft of the future, people think of the visions which have been handed out to them by sensational journalists and artists, and by those more or less in the Trade who want to sell themselves and their ideas to poor innocent capitalists, and by people who want to make our flesh creep with horrors of air wars to come. They talk of aircraft which can fly non-stop round the world without refuelling, or can break the much-advertised "sonic barrier" and arrive before their own sound, or carry hundreds of people, with swimming baths and billiards tables, or can lift atomic bombs so big that all London or New York can be wiped out in one bang.

Well, anyone with a bit of an imagination can think up things like that. Perhaps some day we may even have something like some of them, just as some day we certainly shall have helicopters which will ferry passengers safely between airports and landing-grounds in the centres of cities. But those things are anything between ten and a hundred years ahead. And all that we need to worry about is what sort of aircraft we are going to have between now and ten years ahead—that is to say, what we may call stop-gap types.

Just consider how long things do take to develop. Remember the old rhyme: "Be not the first by whom the new is tried, Nor yet the last to set the old aside"; and the equally wise saying: "Softly, softly, catchee monkey." Otherwise, don't be in too much of a hurry after new ideas, but work up to them from the old ones.

A while ago a foreigner said: "You English never design new aeroplanes, you just modify old ones." That is true enough, and that is why English aeroplanes are so good. They are built round old and tried ideas. Consider that right through the War 1939–45, of all the bright new aircraft, tens of thousands, which came here from the U.S.A., not one of them was fit to go into service till we had modified it in the light of *our* hard-won experience.

And, incidentally, in the early war days, up to the beginning of 1941, while we bought U.S. aircraft on the "Cash and Carry" principle—that is we paid cash and carried them in our own ships—we got the money by selling every penny-worth of British property in the States, from a few pounds' worth of U.S. steel shares, which I held, to the great Coats cotton and nylon factory, worth many millions of pounds, which thenceforth became U.S. property, and no longer brings in profits which would buy things for this country if it still belonged to Coats. So you may say that the U.S. Aircraft Industry, from 1936, when we began to re-arm, to 1941, when the

"Lease-Lend" system came in, because we had no more money left, was built out of British money.

Well now, let us look at what is, as one may say, already in sight in the way of really new aircraft, starting with our own, and consider when, if ever, they will come into common use.

First there is the "Brabazon" I, so called because, as a type, or rather a class, it was chosen by the committee over which Lord Brabazon of Tara presided in 1944 to make out a list of the various classes of aircraft which they recommended the Government to have built at the Nation's expense. This craft was the first class—the biggest that at that time was thought to be practical as a passenger-carrier on a big scale for the North Atlantic traffic. The other classes ranged from big passenger-carriers, through medium short-range "feeder-line" craft, to two-seaters, of little interest to us here, because they were already more or less normal types.

The "Brabazon" I, as everybody knows who is interested in aviation, is to have four contra-rotating airscrews, which means eight if you count one "contra-prop" as made up of two units. Each screw is to be driven by two "Centaurus" engines, which, by the time they are installed will be giving anything between 2,000 h.p. or 3,000 h.p. apiece. Engines are boosted so quickly in these days that one which is giving 1,000 h.p. to-day may be giving 2,000 h.p. next week, or may have blown itself up, so that the makers have to start boosting all over again, and spend months on it.

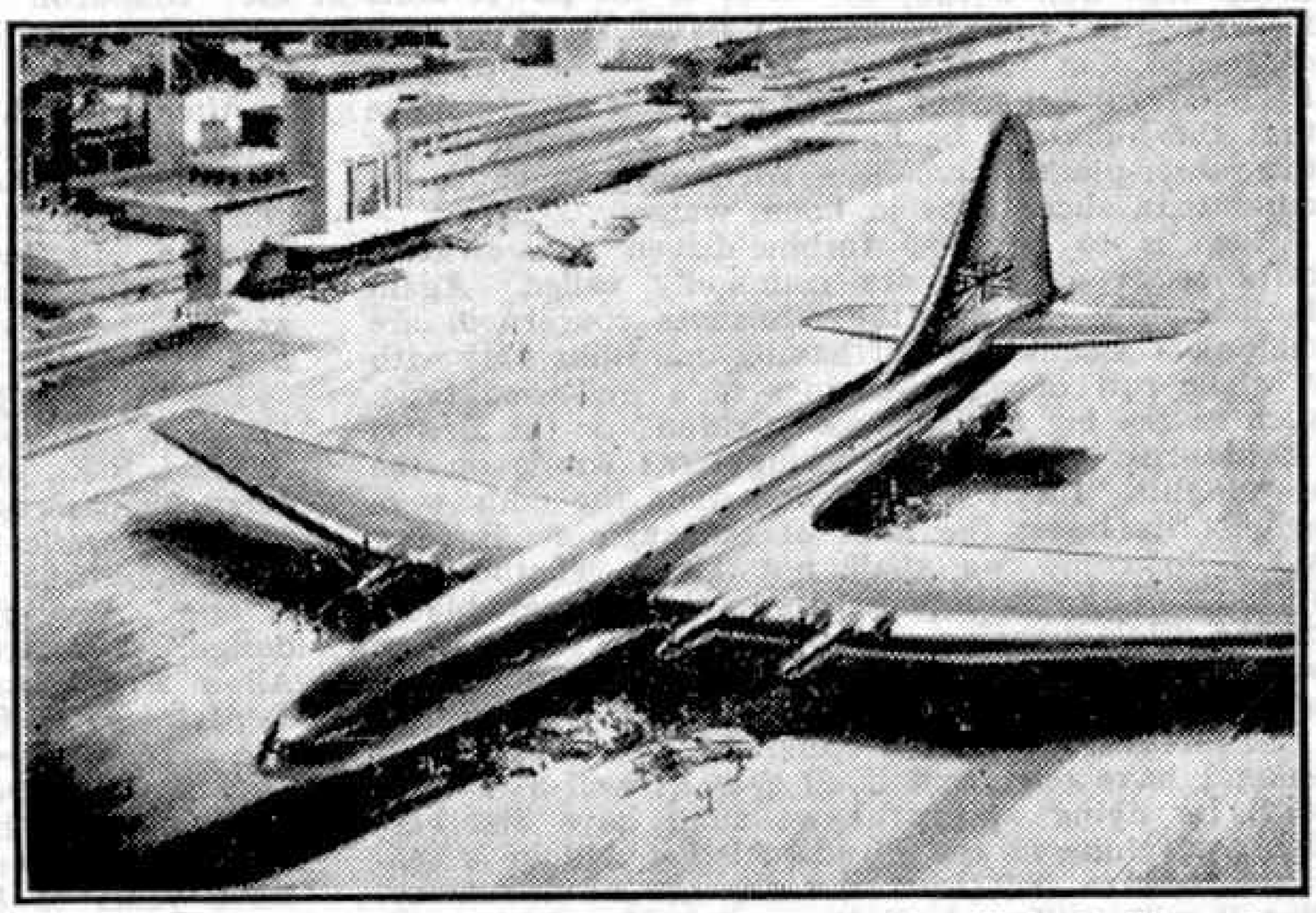
These engines are set side by side at an angle to one another so that they drive to a common gear-box in which is the gearing to the two contra-rotating screws. So you may visualise the amount of work (man-hours) which went into the designing and making of each "power-egg," and the amount of testing those gears took. And we may expect that when they are running in the aircraft in the air something, let us hope nothing serious, will happen which will need adjustment or repair.

Likewise all the control-gear will need months of testing in the air. In spite of all our mathematicians and our aerodynamicists and our wind-tunnels and test-rigs, nobody knows how an aeroplane will behave when it takes the air for the first time. Not very long ago the first of a new four-engined type took off for the first time. It went up easily and then evidently would not answer the elevator controls. The pilot tried to coax it round and back to the aerodrome, but it stalled on the turn, crashed and killed him and his engineer.

We never hear of the new types, especially among the big machines, which the pilot takes off for the first time and only gets down safely by sheer skill and quick thinking, or those which crash and do not kill the crew. That is why the life of a test pilot is so hazardous, and why he is so highly paid. And we have heard of many famous test pilots who have been killed—some, like my friends Bill Thorn, the test pilot, and Roy Chadwick, the designer, who were killed because the aileron controls of a "Tudor" had been crossed, after it had been in the works to be modified when some peculiarity had been discovered.

All of which will give you some idea of why so many years pass between the announcement of a new type and the date when it goes into service either in the Air Force or into Civil Air Transport.

All those concerned, the Ministry of Supply, the Ministry of Civil Aviation, and the Bristol Company itself hope that the "Brabazon" I will do its first rolling tests and perhaps some hopping before the end of this year. A runway which cost hundreds of thousands of pounds has been built, nearly two miles long, on



An artist's impression of what the "Brabazon" will look like when completed.

which to do its hopping—part of a village was pushed down to make way for it. When the runway was built, or most of it, calculations showed that when fully loaded, for maximum take-off weight, the existing undercarriage would break through the runway, so the makers had to design a new undercarriage which would distribute the load over more surface. And that cost more time and a lot more money, but it was cheaper than putting more material over all those miles of runway.

I am not saying this as a criticism of scientists, engineers, or anybody—but just to show the snags that human beings meet when they venture on a vast undertaking of such a sort. Heaven knows how many more will come out before the machine really flies. And when it does fly there are, apparently, only about two runways, Heathrow and Prestwick, on which it dare land, away from home, even with its new undercarriage.

After that comes the "Brabazon" II, which will be the same, plus any modifications found necessary in testing No. 1. But it will have eight turbine-driven airscrews; and no turbo-prop engines of that type or power have flown for any considerable time or distance. So there is no way of calculating to within a year or two when the No. II will fly, and still less when it is likely to go on regular service.

Some time in February, our enthusiastic Under-Secretary for Air, Mr. Lindgren, said in the House of Commons: "the 'Brabazon' I is designed for the Atlantic." The phrase seems unfortunate. It sounds too much like "consigned to the deep," as has happened to too many good aeroplanes, and too many of my gallant friends in past years. So I hope that the omen may be overcome and that both the "Brabazons" may be highly successful and many more like them, duly modified as is our custom.

The next future type in sight is the big Saunders-Roe (Saro) boat. Three of them were well ahead, so far as the hulls were concerned, in December 1947. Magnificent jobs they are. But I should judge that the hulls will be finished a year or two before the power-plants have been tried out enough to do more than short trips in home waters.

Each is to have 10 turbine-driven airscrews, or turbo-props as they are commonly called. Again I think that "they" (the Ministries concerned) are making a mistake in not having one built first with a whole row of piston-engines of a well-tried type, such as the big Rolls-Royce "Griffon" or the Bristol "Centaurus." Then if anything went wrong on the test flights "they" would know that the odds were against its being the fault of the engines. But for years to come we shall not know whether the turbines or the reduction-gears or the airscrew blades or the pitch-changing apparatus was to blame when a jet-prop job comes un-put in the air, or "comes abroad," as they say in Devonshire.

So far as design is concerned the Saro is the finest thing I have seen, and if all goes as well as I hope with its flying apparatus we shall have the best flying machine in the world. Also it will be a sea-plane and so will save the expense of a runway. But it will still need all the radio aids which land-planes need. They will have to be installed round the particular harbours at which it is to call.

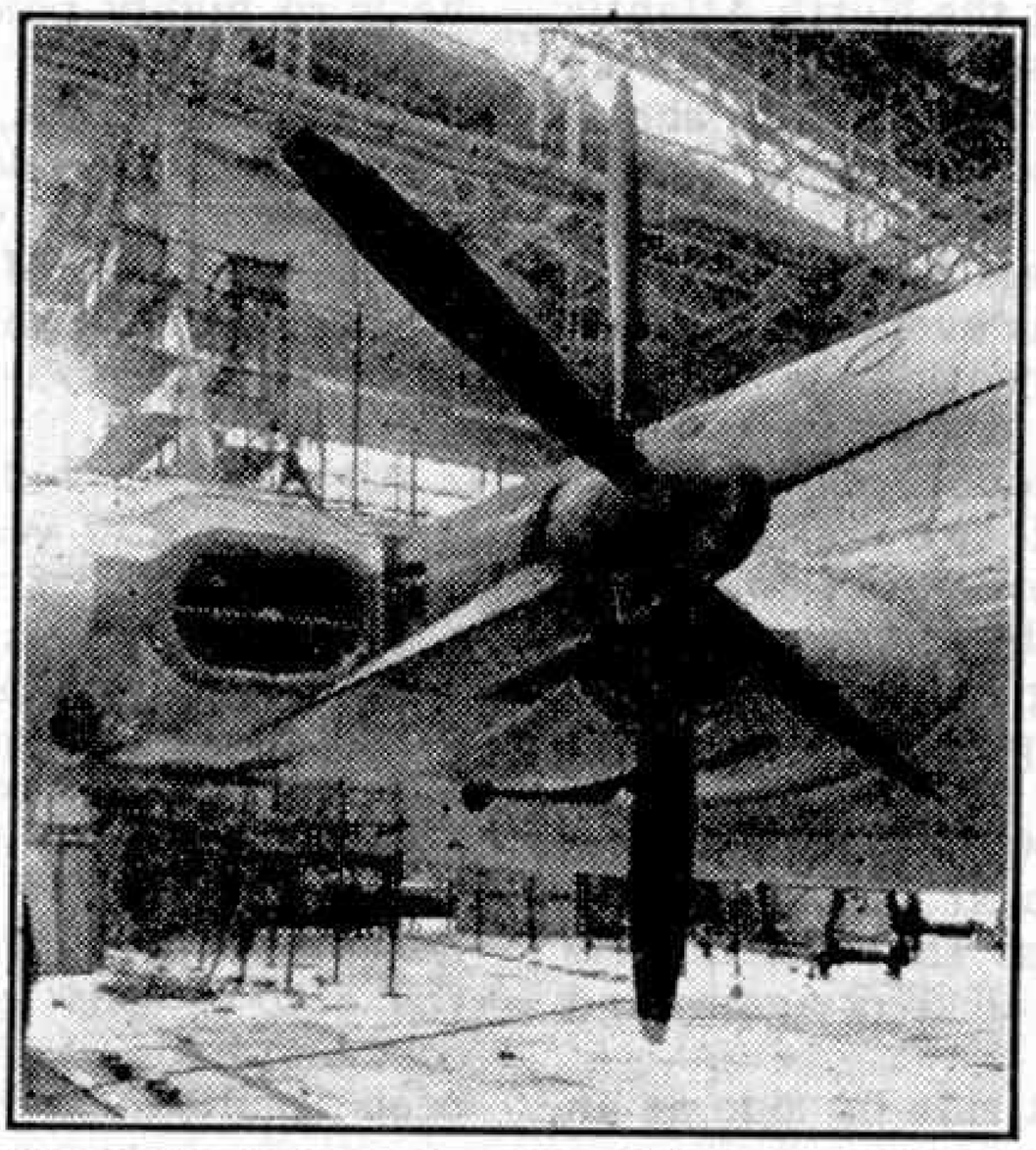
A surprising thing about flying-boats is that so few have been damaged by alighting on wreckage or tree-trunks floating just on water-level where they cannot be seen. At ports which are used regularly by flying-boats, a runway, marked by buoys, lit up at night, is kept clear of such obstructions by motor-boat patrols, but they cannot be 100 per cent. efficient, and yet there have been very few accidents. Such accidents, fatal or otherwise, as there have been were almost always caused by the pilot misjudging his alighting, and either dropping the machine flat on its bottom and staving it in, or stalling and nose-diving.

But with all haste and care and inspection, I cannot see the Saro boats flying regularly on test for three years, or on airline service for five, or possibly seven, according to the snags that are discovered.

Then there is a big De Havilland, the 106, which is to have four pure jet engines—presumably with rocket-assisted take-off, as jets take so long to move a stationary aircraft. It is to have swept back wings, and a fin, but no tail plane—like the tail less type which has been seen at various flying meetings. But it is to weigh about 35 to 40 tons, which is quite a lot of aeroplane.

As it is, in effect, a flying triangular tea-tray, I cannot see it being much use as an air liner. As such it would have to have a pressurised cabin, which means a cylindrical compartment for passengers and crew. And that means few people for a big area of aircraft. Officially it is to have a speed of 500 m.p.h., which sounds much more like a bomber than a passenger craft, when you consider that a cyliudrical compartment inside a triangular body would not give the passengers much of a view.

The first one, the prototype, is well on the way to its final shape, and people talk of it flying this year. But I should give it three or four years to pass its flying tests, and another three or four more to be in production, if official policy demands this type that far ahead in time. On the other hand, its small relation, the "Vampire" fighter, is pouring out of the D.H. works, and out of the English Electric Co.'s works, at wartime speed, for the R.A.F. and Sweden and Norway and Switzerland and other countries within reach of the Iron Curtain; because high-speed fighters are the best protection not only against bombers, but against troops on the ground.



One of the power units of the "Brabazon" I, with its 16 ft. diameter contra-rotating airscrews.

The last of the official pre-visions is still a mere "project" as the officials call it. They have named it the L.R.E., or Long Range Empire type. It is to carry 30 passengers and 1,500 lb. of mail or freight for 4,500 miles non-stop at 350 m.p.h.—which is just about what a "Constellation" does to-day when it tries. Five firms were asked to tender for the design; only three thought it worth considering. Allow a year for the rough design; a year for the Department to find fault and suggest improvements; two years for the detail designs to be finished; another year for the Department to doctor them; two or three years to build the prototype, or two; two or three years to test it and modify it; another two or three years to build the first "production" model; and a further two years to build as many as are needed for airline work; (*Continued on page 366*)

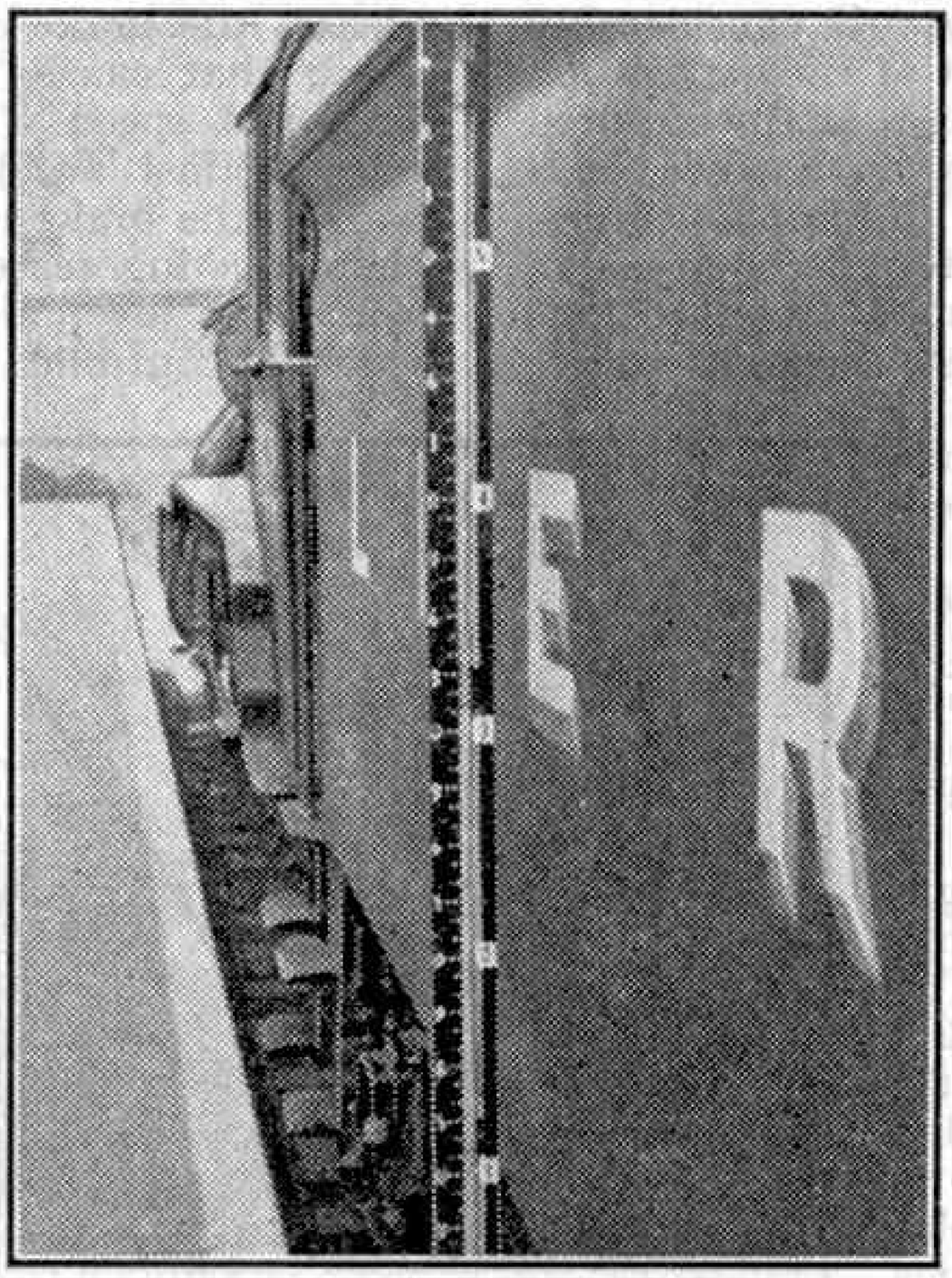
An Unusual Tender Water Gauge

Special Fitting for Locomotive Tests

THE measurement of water consumption in relation to the fuel used and the work done is an important part of steam locomotive testing work. Where a continuous record of engine performance is being made, as in trials with a dynamometer car, water consumption over different sections can be ascertained. The special water gauge shown in the photograph attached to a locomotive tender was designed and constructed by the dynamometer car staff of the former L.N.E.R., to obtain instantaneous readings of the height of water in the tender in the course of locomotive tests. The pressure system of water measurement installed in the dynamometer car itself requires about half a minute to operate.

When using this tender gauge the water height is obtained by looking out of the dynamometer car "ducket." The ducket bulges out from the side of the car, rather like a guard's lookout, and it provides a sort of "bay window" that helps observations by the car staff. This means that trials have to be made during daylight hours. It would of course be possible to provide illumination for trials made during the night, but this would add complications to the apparatus, and the aim is to make all test equipment as simple and robust as possible to avoid failures.

The practice is to use two of these water gauges, one on each side of the tender of the locomotive being tested. The gauges are fixed in a vertical position by suitable brackets bolted to some convenient part of the framework.



A special tender water gauge, details of which are reproduced herewith by courtesy of British Railways, Eastern and North Eastern Regions. Photograph by Mr. S. C. Townroe.

For simplicity of construction each gauge consists of a timber "U"-shaped channel, with a glass tube mounted in the groove. The top end of the glass tube is open to the atmosphere, and the bottom end fits in a brass gland of a water cock.

The timber channel has a graduated scale screwed to it and is painted black, with graduation marks in the form of small "V"-shaped cuts painted white to allow the height of water in the glass tube to be measured in feet and inches. For clearness of vision the "U"-shaped groove in which the glass tube fits is also painted white.

Another stop valve or water cock is screwed to a washout plug in the well or bottom of the tender water tank. The outlet portion of this valve has a "T"-shaped tube connected to it, so that rubber tubing can be used to take the water to each of the cocks of the tender gauges. Before the rubber pipes are coupled up a few drops of colouring fluid are introduced to help observation.

The gauges are fixed to the tender at the centre of gravity of the water to allow for gradients of the line, and the mean reading of right and left hand gauges allows for the effects of superelevation.

The water consumption from the tender is calculated by converting the heights of water obtained in this way into gallons by means of a diagram giving the number of gallons which the tender tank holds for each one inch in height. The water in the boiler must be kept at some fixed level, and the boiler pressure uniform, when successive measurements of water in the tender are made.

Modern Mobile Cranes

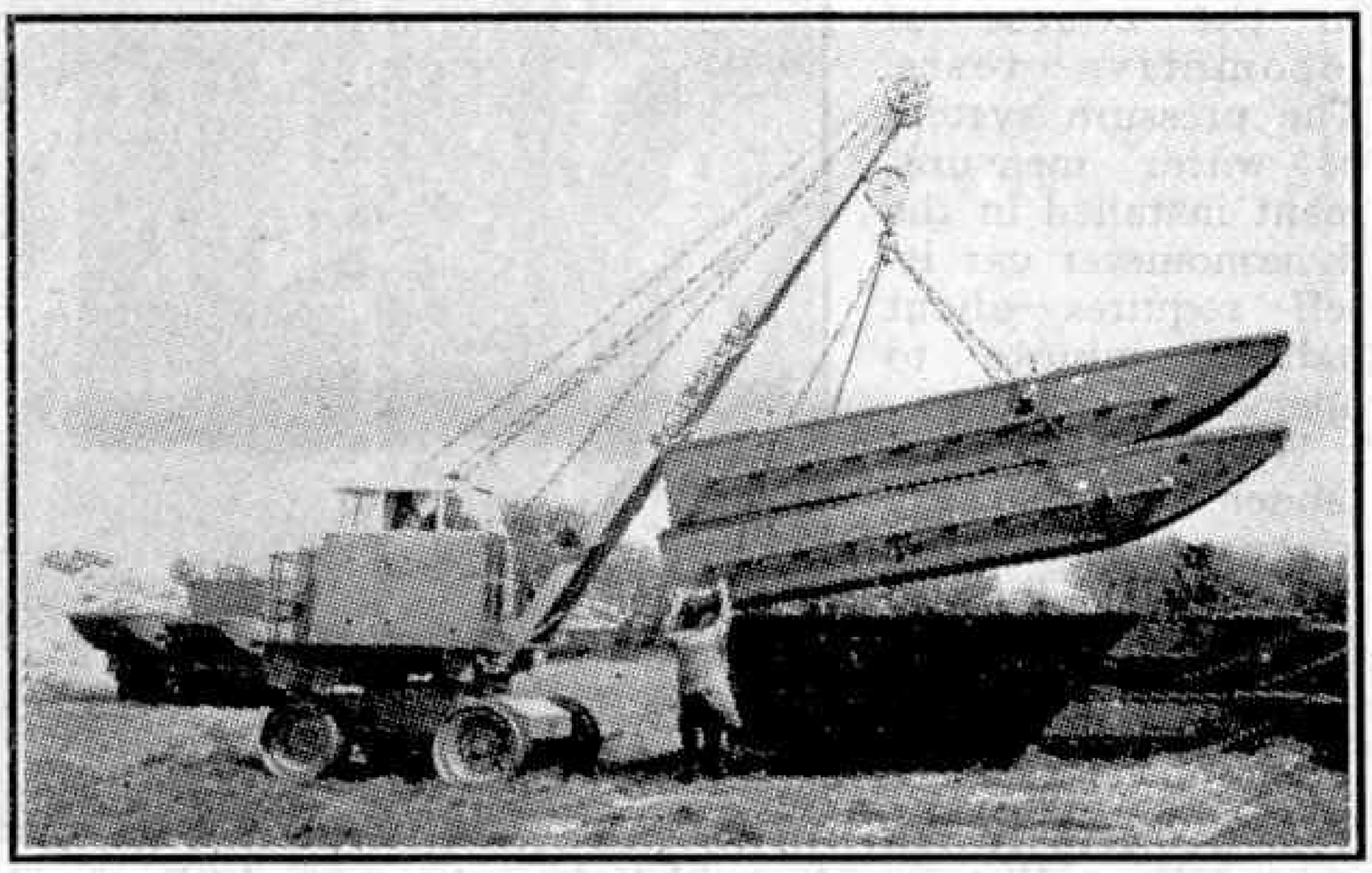
SOME of the most interesting of the many types of cranes now in use in industry are those mounted on wheels or crawler tracks that can be moved readily to deal with loads in different places. The advantages of having mobile cranes of this kind have long been recognised. One early type, used very largely in excavation work, consisted of little more than a steam winch, a jib and a vertical boiler carried on a turntable mounted on a small truck. By modern standards this was crude, but it speeded up work considerably by hoisting the spoil out of the excavation in small tubs and tipping it at the required distance. Great strides have since been made with the design of mobile cranes. In particular the internal combustion engine has been introduced, and the diesel engine is now the most favoured source of power.

The interesting mobile cranes illustrated on these pages are products of K. & L. Steel Founders and Engineers Ltd., Letchworth, who make three Jones "Super" models of different lifting capacities. These are of compact modern design, and all three are powered by diesel engines. The smallest, the "Super 22," is of two tons capacity. The "Super 40" will lift three tons and can be mounted either on solid rubber tyres, pneumatics or crawler tracks; while the "Super 100," which has a lifting capacity of five tons, is rail mounted for work on railways, docks, harbours and large factories where track of British standard gauge is in use.

The power unit of the "Super 22" is either a Turner water-cooled diesel engine or a Ruston diesel. The crane itself is of the full circle slewing type on a massive cast steel rotor path, carefully designed to give even distribution of loads within the structure of the machine. Two forms of jib can be supplied, one a cantilever with a return block for use where head room is restricted, and the other a lattice strut jib 24 ft. in length to give higher lift or greater reach. The cantilever jib crane can lift two tons to a height of 17 ft. at a radius of 8 ft.; with the lattice jib the radius of the two-ton lift for a height of 20 ft. 9 in. is 8 ft. With smaller loads the radius can be increased at lower heights. Thus with a 7 cwt. load this maximum radius is 20 ft. with a lift of 15 ft.

The hoisting motion of the crane is controlled by means of a single lever in the driver's cabin. Movement of this in one direction causes the crane to lift the load, while that in the other direction releases the brake and engages a lowering clutch that causes the hook to fall at a controlled speed. This arrangement provides against accidental dropping of the load, as the brake is automatically applied when hoisting ceases.

A single lever also is used for slewing, which is controlled by reversing clutches.



The Jones "Super 40" mobile crane at work in the open. The illustrations to this article are reproduced by courtesy of the K. and L. Steel Founders and Engineers Ltd., Letchworth.

Power for moving the crane is obtained through a gear-box and a clutch operated by the foot, and steering is simple, the driver having both hands free for this duty when the crane is travelling. Solid or pneumatic tyres are fitted according to requirements, and the crane has a "light" travelling speed up to 4 m.p.h., with a speed ratio suitable for travelling with a load under all conditions of service.

The "Super 40," which has a lifting capacity of three tons, has a standard jib 24 ft. long, but longer jibs can be supplied if required. As already mentioned, the chassis can be mounted on crawler tracks as an alternative to solid rubber

The Jones "Super 22" mobile crane at work in the aisle of a machine shop.

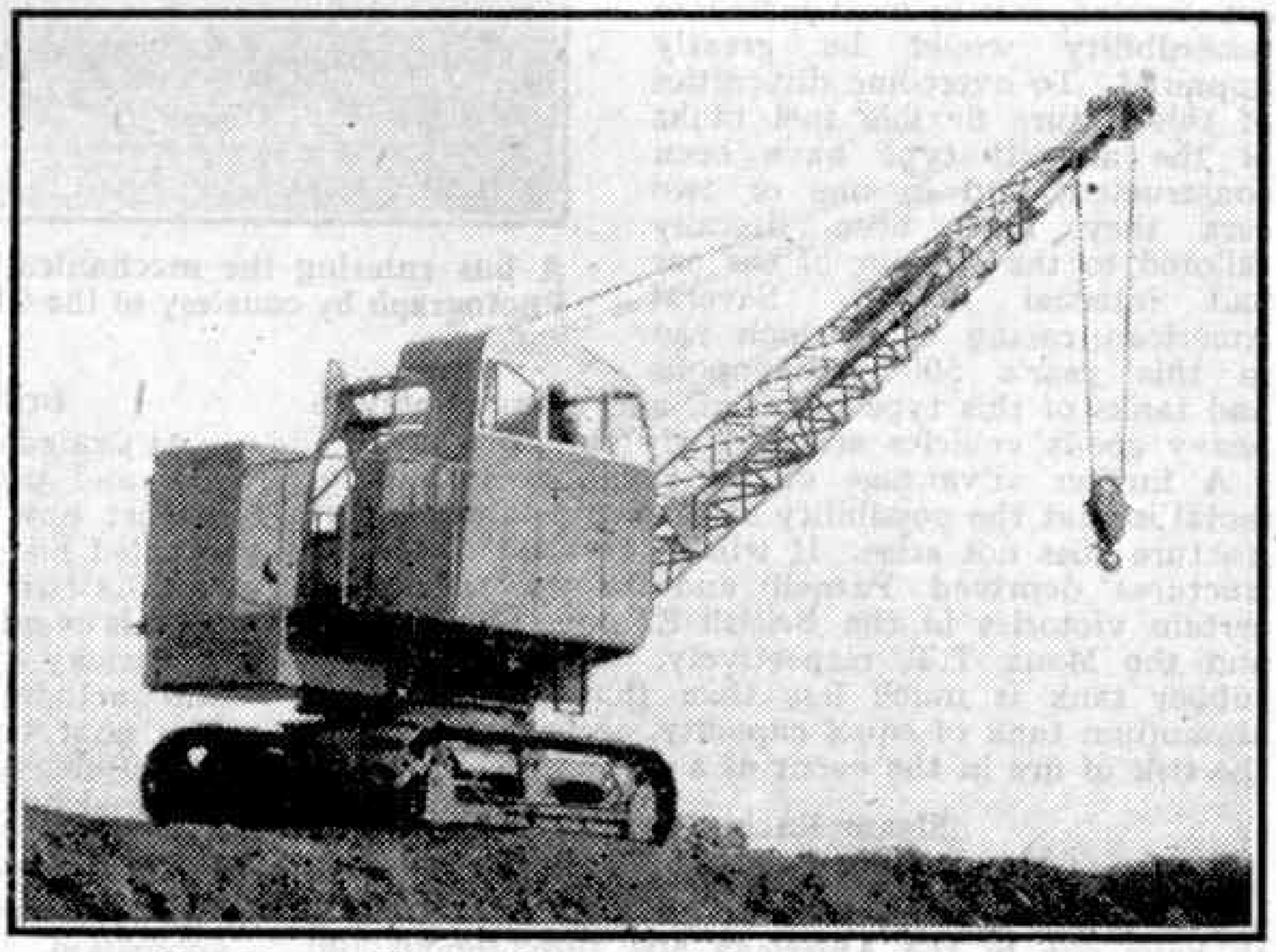
tyres or pneumatics. A Turner twin-cylinder water-cooled diesel engine or a Ruston twin-cylinder diesel unit provides power, and the drive from the engine to the two-speed primary mechanism is by means of enclosed triplex chain. This drive controls the speeds of operation, providing for travelling at speeds up to 2 or 4 m.p.h., slewing up to 2 or 4 r.p.m., and derricking over the full range in about 30 sec. Hoisting speeds vary with the load. With three tons the rate is 40 ft. per min., with two tons 80 ft. per min., and one ton 160 ft. per min. on a single rope.

The carriage of this crane is a welded one-piece steel structure, rigidly braced, and the superstructure rotates on four tapered steel rollers, a large base being provided to give balance in operation. A large plate clutch is provided for operating the hoisting motion, which is controlled by a brake that is applied automatically as soon as the single control lever is brought to the neutral position. The hoisting mechanism is operated by moving the lever in one direction; the brake is released, allowing the load to be lowered, when it is moved in the opposite direction, and further movement of the lever brings in a lowering clutch that drives the hook down by power. Specially designed plate clutches ensure that the control is sensitive and powerful.

The "Super 100" rail crane has a Dorman four-cylinder diesel engine as the source of power for hoisting and all other movements, and variable speeds are obtained by means of an accelerator pedal controlling the engine. Both undercarriage and superstructure are of heavy steel welded construction, suitably braced to stand the shunting duties that the crane is designed to carry out in addition to lifting. Its shunting capacity is 150 tons, and deep buffer beams are fitted to serve as rail guards in the event of derailment. Normally the crane is designed for use on tracks of the British standard gauge of 4 ft. 8½ in., but it can be arranged for other gauges if required.

In accordance with modern practice all gears are enclosed in oil bath cases, provided with suitable inspection doors, and controls are so arranged that all motions can be operated by the driver from his seat in a weatherproof cabin. Pedals are provided for accelerator, engine clutch and travelling brakes, and the hand levers are grouped within easy reach. The crane can lift five tons at speeds up to 70 ft. per min., with a maximum radius of 16 ft., and it can travel on its rails at speeds up to 5 m.p.h.

Power lowering is available for the hook when empty. The controls are so arranged that the driver operates all of them from his seat in a weatherproof cabin.



The Jones "Super 40" mounted on crawler tracks.

On Road and Track

Bus Washing Plant

The task of keeping buses externally clean is usually quite a big undertaking, as many bus companies and municipalities have no equipment for tackling the problem efficiently. In the U.S.A. nearly all large garages are equipped with mechanical washing plants, and buses pass through them on a conveyor. Since the war many British bus operators have been acutely aware of the necessity for such a plant and several are now under construction. Glasgow was the first municipality to tackle the problem, and since 1940 a mechanical washing plant has been in continuous operation at Knightswood Garage; eventually it is hoped to equip all Glasgow Corporation Transport garages in a similar manner. Since its erection this plant has averaged the washing of 150 buses per night, each individual bus passing through at a speed of approximately one foot per second.

The photograph on this page shows a bus entering the washing plant, and the two guide bollards can be seen. These bollards, which carry lights, were essential during the war years, as the plant is situated in the open garage yard, and blackout regulations made it most difficult for drivers to align their buses with the washing plant prior to entering. Elaborate kerbs also are installed for guidance. The equipment includes eight vertical rota mops, four on each side, which are equipped with cloths and operate at 60 r.p.m. These are continually flooded with water fed through pipes perforated at small intervals. One horizontal rota mop is installed at the top of the plant to clean the roofs of buses and at the exit end of the mechanical washing plant clean water is pumped through perforated pipes to clean away any trace of grit or dirt.

Flexible Fuel Tanks

Racing car designers frequently experience the difficulty of providing accommodation for a large amount of petrol in very limited and irregular spaces. Tanks of weird shapes could of course be constructed, but in most instances accessibility would be greatly impaired. To overcome difficulties of this nature flexible fuel tanks of the aircraft type have been constructed, and in one or two cars they have been literally tailored to the contour of the car and internal fittings. Several American racing cars which ran in this year's 500 Indianopolis had tanks of this type installed, and many American heavy goods vehicles are similarly equipped.

A further advantage of using rubber instead of metal is that the possibility of tank and tank-support fracture does not arise. It will be recalled that tank fractures deprived Parnell and Brown of almost certain victories in the British Empire Trophy race and the Manx T.T. respectively. The weight of a rubber tank is much less than that of a steel or aluminium tank of equal capacity. and its use lessens the risk of fire in the event of a crash.

Steam Racing Car

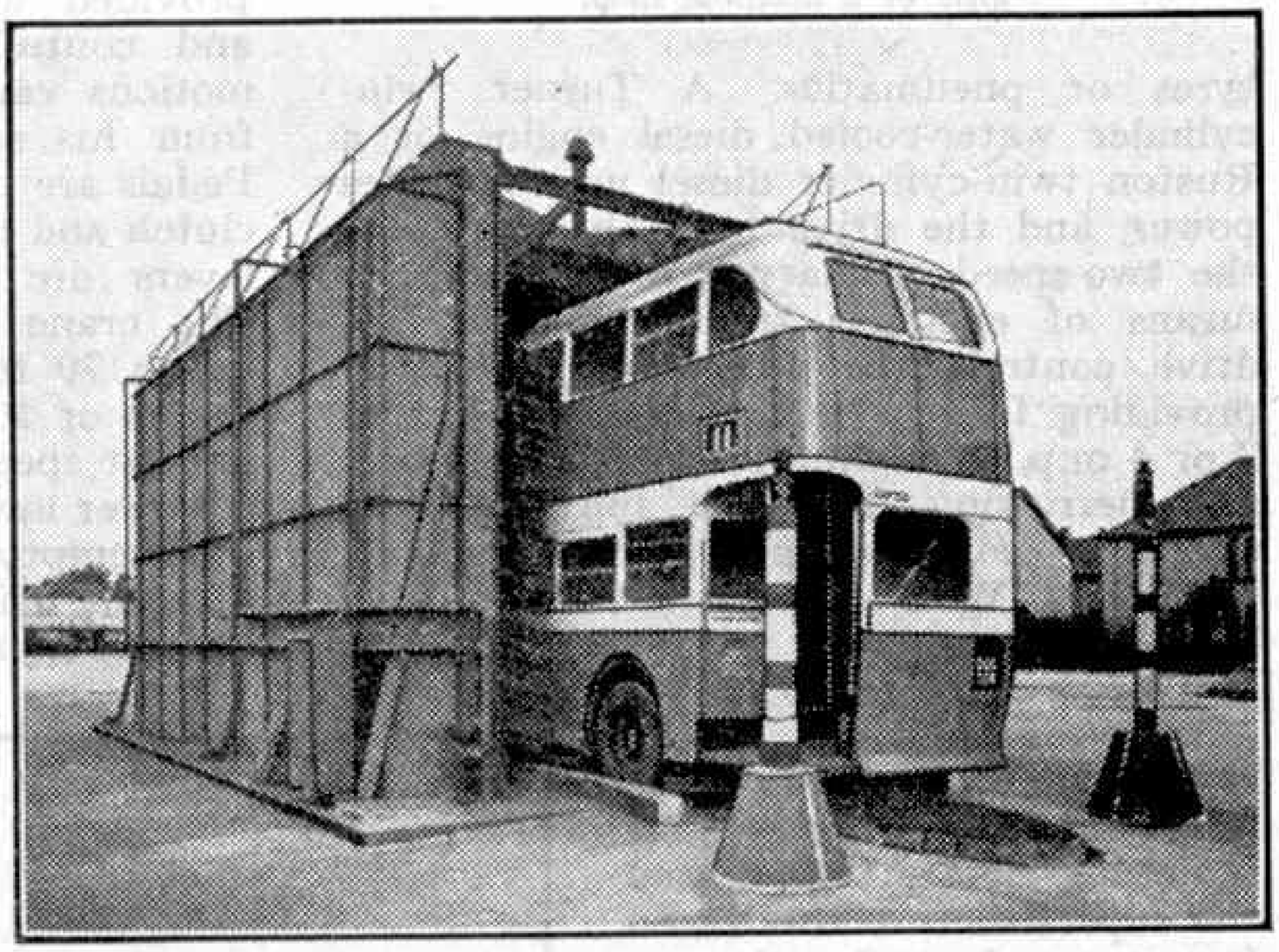
Some interesting details have been given of the steam racing car designed by Don Suttle that was to have run in the American 500 Indianopolis but was withdrawn just before the race. Its power unit is a horizontally opposed two-cylinder steam engine of 4 in. bore and 5 in. stroke. No crankshaft is fitted and reciprocating motion is changed to rotary by a planetary arrangement. The engine is equipped with poppet valves, and drives on the front wheels. It has only 16 moving parts and its total weight is 218 lb. The normal steam pressure builds up to 750 lb. per sq. in. and it is claimed that 240 b.h.p. is developed at 2,000 r.p.m.

Exciting Finish at Zandvoort

The new Dutch G.P. circuit at Zandvoort was initiated on 7th August by selected British racing drivers and B. Bira. The race developed into a thrilling neck and neck struggle between Bira (Maserati) and Rolt (Alfa-Romeo), Bira eventually winning this 104.2 mile race by a matter of yards at an average speed of 73.24 m.p.h.

John Cobb's Car on Show

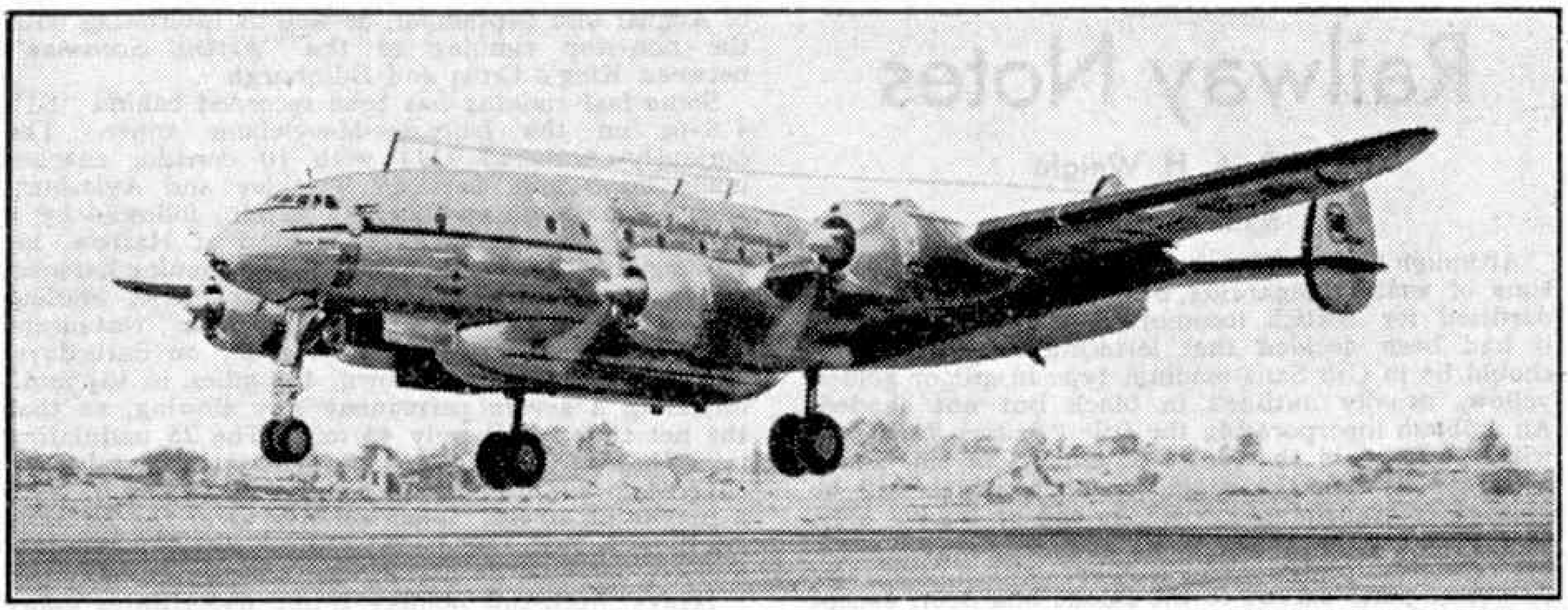
An interesting sight for readers who may be in London during the Motor Show at Earl's Court, open from 27th October to 6th November, will be John Cobb's world speed record car the "Railton Mobil Special." It is being exhibited with the body removed and a close inspection can be made of the chassis and engines.



A bus entering the mechanical washing plant at Knightswood Garage. Photograph by courtesy of the Glasgow Corporation Transport Department.

British Hill Climbing Championship

At Craigantlet, Raymond Mays, driving in his usual cool and precise manner, gave a perfect exhibition of just how a fast hill climb should be made. He handled his green 1,980 c.c. E.R.A. superbly throughout the two climbs and broke the 11 year old record for this event, his best time being 75.8 secs. Craigantlet is a tricky hill; it has an average gradient of 1 in 16½ and includes two fast bends and five sharp corners. The next best time was returned by S. H. Allard (3,500 c.c. Allard) who was over two seconds slower, followed by K. Hutchinson (Alfa-Romeo). By scoring 9 points in the final event of the British Hill Climb Championship at Prescott on 12th September, R. Mays (E.R.A.) became champion for the second year in succession. R. D. Poore was runner-up, one point behind Mays.



A Qantas "Constellation"

By "*Kangaroo*" to Australia

By John W. R. Taylor

SELDOM has an air service been more appropriately named than the joint B.O.A.C.-Qantas "*Kangaroo*" service to Australia, which covers the 12,169 miles between London Airport and Sydney in six giant "hops."

The old B.O.A.C.-Qantas flying boat service between Britain and Australia, through Singapore, had to be abandoned in 1942 when the Japanese occupied Malaya. But Qantas refused to be beaten and courageously started a 3,513-mile non-stop service across the Indian Ocean, linking Perth, Australia, with Colombo, Ceylon, named the "*Kangaroo*" service. It was the longest non-stop haul in the world and took 27 hrs. to complete by "Catalina" flying boat. Qantas pilots made the crossing no fewer than 824 times between July 1943 and April 1946, when the Singapore bases were put back in commission. Passengers saw the sun rise twice on the trip and were presented with a souvenir certificate admitting them to the select membership of "The Rare and Secret Order of the Double Sunrise."

Even before the Japanese sun set in 1945, however, B.O.A.C. and Qantas got together again to re-open the through commercial air route between Britain and Australia. In recognition of Qantas' fine wartime record over the Indian Ocean the name "*Kangaroo*" was adopted for the new service. The first "Lancastrians" were introduced on the route in June 1945 and their high speed brought Australia within 63 hrs. of Britain, compared with nine days taken by the veteran "Empire" flying boats. B.O.A.C. aircrews flew the aircraft as far as Karachi, where they were taken over by Qantas crews for the rest of the journey to Sydney. Eleven months later the "Lancastrians" were joined by "Hythe" flying boats, and passengers have since then had the choice of a fast "cannonball" landplane service or a leisurely 8-day journey by flying boat, in great luxury.

The prestige value of the fast, reliable "*Kangaroo*" service did much for British civil aviation in the immediate post-war period, but it was not an economical proposition when operated with converted warplanes, and now the "Hythes" and "Lancastrians" are having to give way to fleets of new air liners. Already the changeover has started, and Qantas have four "Constellations" in use on the route, operating a twice-weekly round trip side-by-side with the B.O.A.C. "Hythes," which fly three times a week in each direction. By the time this article is printed, B.O.A.C. will have started to replace the "Hythes" also with five "Constellations" they have bought from the Irish Aerlinte company.

So the flying boat service will be abandoned altogether; but another use has been found already for the "Lancastrians." Stripped of their passenger seats, they are operating a high-speed freight service between Australia and Britain. The "Lancs," making three round trips a fortnight, follow the same route as the "Connies"—London, Cairo, Karachi, Calcutta, Singapore, Darwin and Sydney—with additional stops when necessary at Castel Benito and Basra.

Railway Notes

By R. A. H. Weight

National News

Although no decision had been announced at the time of writing regarding basic colours to be standardised for British locomotives and rolling stock, it had been decided that lettering and numbering should be in Gill Sans medium type in gilt or golden yellow, usually outlined in black but not shaded. An emblem incorporating the title "*British Railways*" will be placed in the centre of tenders or side tanks about level with the engine number, which will be painted or transferred on to the cab or bunker side. Western Region engines will retain present style cast number plates. The number will appear also on a cast plate affixed to the smoke-box door, except on diesel or electric engines.

Coaching stock will eventually be lettered and numbered in a standard style. First-class compartments or seating will be indicated by figures, lettering and adhesive labels, and so will second-class accommodation where this is provided. Labels will denote non-smoking compartments. Third-class, smoking, will carry no distinctive indication, thus following latest practice on various lines.

In order to meet the greater demand for movement of coke to blast furnaces, 250 wagons are being converted to the hopper type, having bottom doors for quicker discharge. In addition, 40 wagons of other types are being fitted with trestles enabling large steel plates to be carried in an upright position.

Cambridge - Oxford train entering Bletchley. The engine is London Midland 2-6-0 of Class "4," temporarily numbered M3004. Photograph by H. C. Casserley.

Eastern and North Eastern Regions

The new "A1" 4–6–2 No. 60114, so far unnamed, began running between Doncaster and King's Cross in the middle of August. It has 6 ft. 8 in. driving wheels and a plainly finished double chimney, but otherwise is almost identical with the Peppercorn "A2" design.

Included among the express engines painted Royal blue are: "A4" Nos. 60024, 60027–8, and "A3" Nos. 60045, 60071, 60074–5, 60084 and 60091, some of which also work in the Scottish Region. Certain "V2," "B1," "K3" and "N2" class engines are running painted black with grey, cream and red lining.

The "*Queen of Scots*" Pullman express makes a brief stop just outside Grantham station to change enginemen, though no call is advertised between London and Leeds. King's Cross engines work through to and from Leeds, where the train reverses, with 10 handsome cars.

On account of serious damage due to disastrous floods washing away bridges and embankments north of Berwick-on-Tweed, diversion of all East Coast trains had to take place, first on to former L.M.S. tracks, later by way of local lines and the Waverley route. This caused considerable delay during part of August and September, as well as interfering with the non-stop running of the "*Flying Scotsman*" between King's Cross and Edinburgh.

Some fast running has been recorded behind "B1" 4–6–0s on the Leicester-Marylebone route. The curiously-numbered 1111 with 10 corridor coaches made up 5 min. between Brackley and Aylesbury with a maximum speed of 75 m.p.h., followed by a further 5¼ min. gain on to a stop at Harrow, involving good hill climbing and smart running between service slacks. The almost new No. 1299, hauling the similarly-loaded "*South Yorkshireman*" restaurant car express which calls at Aylesbury on Saturdays, ran from Rugby to that town, 45¼ miles, in 46½ min., including a severe permanent way slowing, so that the net time was barely 44 min. The 25 undulating miles between Woodford and Quainton Road were covered in 20¾ min. at an average of 72 m.p.h., with a maximum of 84. When on trial over the Midland Division, L.M.R., No. 61251 "*Oliver Bury*" is reported to have attained 85 m.p.h.

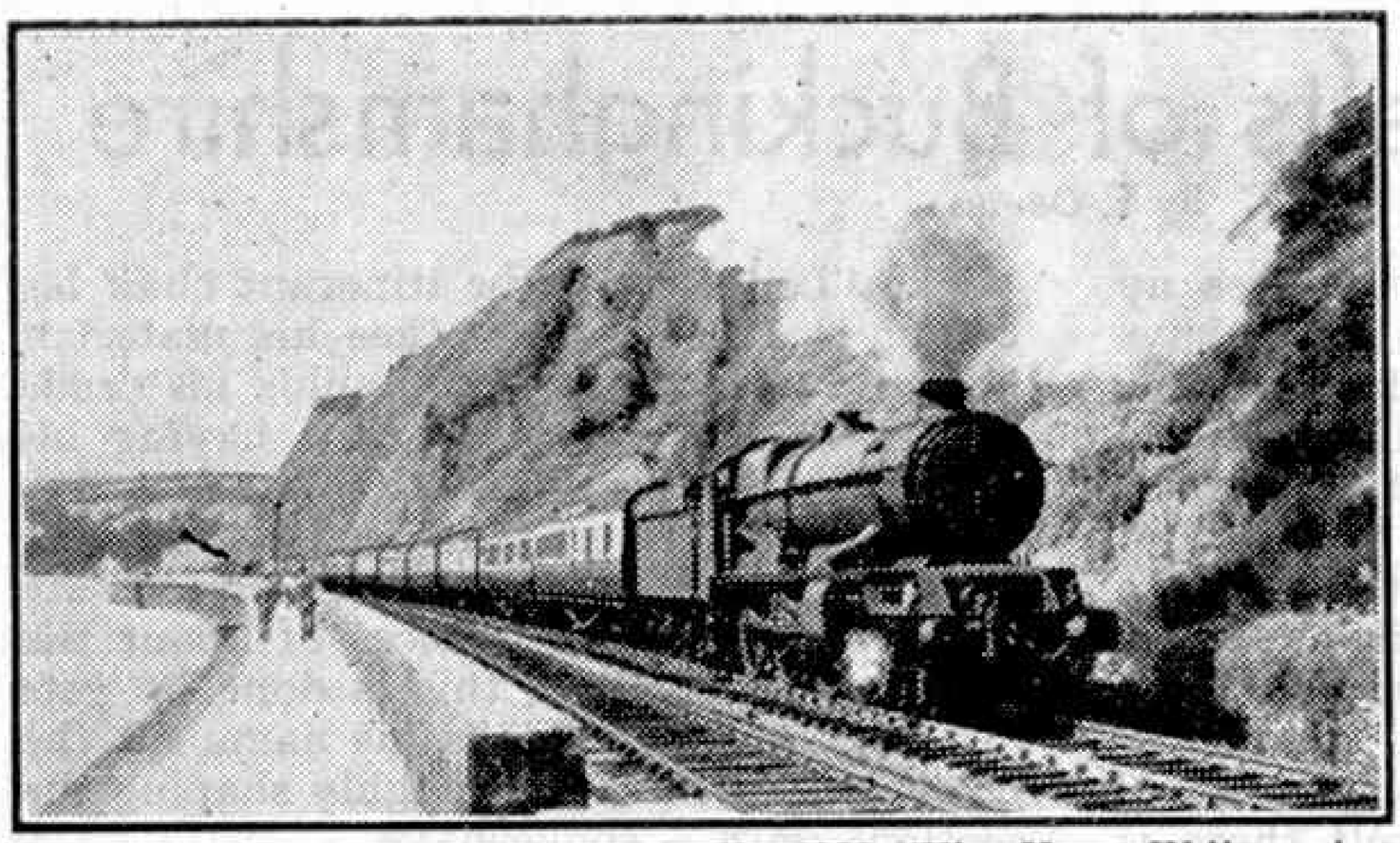
Heavy week-end holiday traffic necessitates many additional trains between Liverpool St. and the coast resorts of Norfolk and Suffolk, some of which run without stop to or from Lowestoft, Beccles or Ipswich; 4–6–0 locomotives of classes "B1" and "B17" are prominent, also some "B2," with the rebuilt "B12" type still doing much useful work. On the Midland and Great Northern Joint line to the East Anglian coast, where drivers have long been accustomed to getting the best out of small engines, G.N. Ivatt 4–4–0s perform prodigies of haulage in summer; G.N. 2-cyl 2–6–0s now work over parts of that route.

London Midland, and Scottish Regions

New class "5" mixed traffic 4–6–0s placed in service were Nos. 44700–1, stationed at 29A, Perth, and Nos. 44746–7 with Caprotti valve gear at 20A, Leeds. Recent batches in this most numerous class vary a good deal as regards boiler and fire-box from the original domeless, low-degree superheat type. The present standard, to which many of the earliest engines are being modified, provides in a domed top-feed boiler a heating surface of 2,009 sq. ft. This includes the 24-element superheater, which is larger than that originally provided. Another class "4" 2–6–4T is No. 42161, allocated to 23D, Wigan. Some of the new class "4" 2–6–0s are seen working passenger trains on the Somerset and Dorset line as well as other secondary routes. Midland Compound 4–4–0s, L.M.S. 2–6–0s and some class "4" 0–6–0s were recorded on a busy summer Saturday to be sharing with Stanier 4–6–0s in main line passenger haulage between Birmingham and Gloucester, a route handling much through north to west traffic.

"Patriot" 4–6–0s No. 45512 "*Bunsen*" and No. 45532 "*Illustrious*" have been rebuilt as "6P"; the similar No. 45529 has been named "*Stephenson*" in view of its taking part in the recently-celebrated Stephenson centenary at Chesterfield.

Various important bridge renewals are being put in hand together with other structural improvements. Radar apparatus is being fitted at Tilbury Riverside station to aid the operation of the frequent



The up "Torbay Express," hauled by No. 6020 "King Henry IV," running along the sea wall between Teignmouth and Dawlish. Photograph by Eric Oldham.

ferry steamers crossing to Gravesend in connection with L.M.R. trains.

Western Regional News

The third "King" class 4–6–0 to be painted blue is No. 6001, "*King Edward VII.*" "Bulldog" 4–4–0s, though appearing in the lists of withdrawn engines at intervals, are still seen working semi-fast trains in Devonshire and elsewhere, as well as assisting other engines over steep gradients; but "Manor" 4–6–0s are now stationed at Laira (Plymouth) and Newton Abbot to a greater extent. They also run over the former M. and S.W. Junction line from Cheltenham to the S.R. The 2–4–0Ts Nos. 1196–7, just withdrawn, began service as long ago as 1866, having been built for the Cambrian Railway in its early days by Messrs. Sharp, Stewart and Co.

New "Castle" express engines lately completed were Nos. 7013 "*Bristol Castle*," allocated to PDN., 7014 "*Caerhays Castle*," and 7015 "*Carn Brea Castle.*" Additional diesel-electric shunting locomotives for the London area are numbered 15105–6.

Train numbers carried on the engine fronts of main line trains were considerably extended in use during the summer season at weekends, the numbers being grouped according to route and origin of trains. For example, down expresses Paddington to West of England via Lavington or Bristol on Saturdays are numbered 120–195, while those from North to West of England are 205–248.

Southern Tidings

Wedge-shaped cab fronts as introduced first on the "Battle of Britain" 4–6–2s are gradually being fitted to other "Pacifics." Smoke-box number plates are now appearing to a greater extent. Green headboards having yellow lettering are used for the fronts of engines on the "*Atlantic Coast Express*" as well as the three "*Belles.*" The "*Bournemouth Belle*" has on occasion been formed of a dozen 12-wheeled cars; the "*Thanet Belle*" runs with 10 Pullmans; and the "*Devon Belle*" is often the heaviest of the three.

Of the light 4–6–2s, Nos. 34077–9 are shedded at Ramsgate, Nos. 34074–6 being transferred to Stewarts Lane. Nos. 34080–1 are just being completed as we write these notes. Names recently affixed include No. 21C121 "*Dartmoor*," No. 21C125 "*Whimple*" (instead of "*Rough Tor*"), No. 34030 "*Watersmeet*" and No. 34042 "*Dorchester.*" Diminutive "Terrier" 0–6–0Ts continue to haul passenger trains on the Hayling Island and the Kent and East Sussex lines. We illustrate "*Boxhill*" finished in original style as appearing at the Waterloo Station Centenary.

"Merchant Navy" No. 35005 "*Canadian Pacific*" is reported to have given satisfactory performance in important service between Waterloo and Salisbury fitted with an American type steam-operated mechanical stoker consisting of a coal crusher and conveying screws. A special article on this installation appears on page 350 of this issue.

Speeds of 80 m.p.h. and considerably over, were recorded in August last behind "D1" 4–4–0 No. 1739, working a Kent Coast fast from Victoria with a train weighing 220 tons.

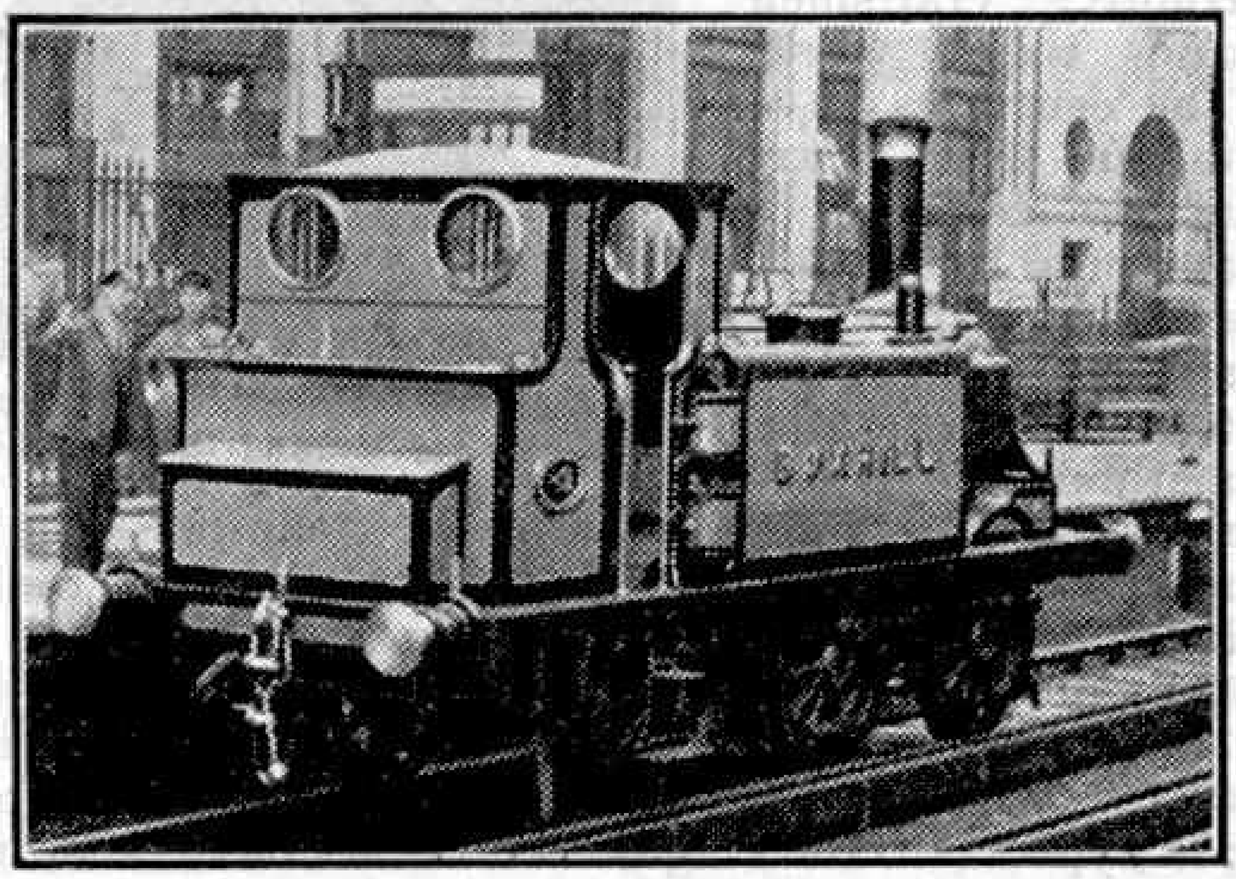
In the effort to maintain a high standard of punctuality a competition between locomotive depots has been introduced. A monthly chart is prepared showing the number of passenger train miles run, and on it the number of minutes lost by a particular depot for every 1,000 passenger train miles run can be read off. Considerable interest among the staff has been aroused by the scheme. The leading main line depot for the August four-weekly period was St. Leonards, with a figure of only 0.84 min. lost per 1,000 passenger train miles.

Travelling Bookstalls

From the bookstall on the platform to a bookstall in the train is a development that has recently taken place. In this British Railways, the Pullman Car Company, and W. H. Smith & Son Ltd. have combined to provide passengers with their reading wants during the run on the following Pullman trains—"*Golden Arrow*," "*Bournemouth Belle*," "*Thanet Belle*," "*Devon Belle*," "*Queen of Scots*" and "*Yorkshire Pullman.*"

Leeds-built 2-8-0 for Peru

A 2–8–0 locomotive of specially interesting design has recently been built by the Hunslet Engine Co. Ltd., of Leeds, for the Guaqui-La Paz Railway of the Peruvian Corporation. It will operate on routes almost entirely above the 1,200 ft. level over steep gradients where axle loads are severely restricted by rail weights and bridges. The engine is fitted for oil burning, but with certain necessary alterations it can also be made to use soft coal as fuel.



The veteran Stroudley 0-6-0T "Boxhill" in Brighton yellow at the Waterloo Station Centenary. Note the elaborate finish. Photograph by E. S. B. Elcome.

Ancient Crafts of Buckinghamshire

By E. Davies

FOR many centuries in the villages up and down our countryside there have been craftsmen at work making simple products for everyday use in the home, putting their own idea of beauty into their work. An artist may transfer his sense of beauty to canvas or paper, but the craftsman is no less an artist if he creates something that serves perfectly the purpose it is intended for, be it a thatched roof, a basket or a chair.

Apart from the product itself there is a definite sense of beauty in the way the craftsman handles his tools. To the town dweller the countryman often appears clumsy, but anyone who watches him at work will soon appreciate his steady rhythm and perfect balance, so that what appears at first sight to be slowness is very far from being so. There grows within the observer a sense of pride and admiration for the country craftsmen and their work. The centuries have taken their part in the forming of our rural industries, and, in spite of marvellous mass-production methods the hand-made article still commands a definite market. We badly need the balancing influence of these old crafts in these hectic days of speed and science.

The chair leg craftsman at work, shaving wood sections before turning them on his pole lathe.

Nearly every county has its special crafts. The two illustrated on these pages are typical of Buckinghamshire and have been carried on in this county for centuries. The chair leg maker no doubt originated in the Chilterns because of the abundance there of beech trees, which grow to a massive size above its chalky soil. Beech wood is chiefly used for chair making as it is durable and has a fairly straight grain, splitting easily.

The "bodger," as the itinerant chair leg maker is called, often takes his materials into the beech wood and builds his crude hut in a clearing there, thus having his raw material round him. His first job is to saw the tree into the lengths necessary for the legs or spindles. These sections are then split deftly into pieces of about the size required. When this is done he gets his "horse" out. This is his name for the frame he sits on while roughly shaping the sections with a spokeshave.

Then comes the turning on the pole lathe, a simple centuries-old method. The pole lathe consists mainly of a roughly made bench, with an attachment at each end for holding the spindle. Underneath is a wooden treadle, and fixed to this a cord which loops once round the spindle, the other end of the cord being tied to the end of a long flexible pole. The thick end of the pole is fixed near the ground, leaving the pole at an angle, and some distance along is supported by a framework of logs in order to give the necessary spring to the thin end. When the treadle is pressed the spindle is turned by the cord, and the end of the pole in the air is pulled down. As the treadle is released the pole springs back and so turns the spindle the opposite way. With a steady hand and a true eye the operation is repeated until the spindle is rounded off. The rings or any fancy work on the spindles are always kept in the same position by means of marks on the bench. The beauty of this method is that if the pole snaps the bodger has only to go a few yards to cut a fresh one!

After the spindles have been turned

A pillow lacemaker at work at the door of her cottage.

they are stacked up to dry for many months and eventually find their way to the chair factories of High Wycombe or elsewhere. Before the time of mass production it was a common sight in the market towns to see the rural craftsmen displaying their products along the streets on market days.

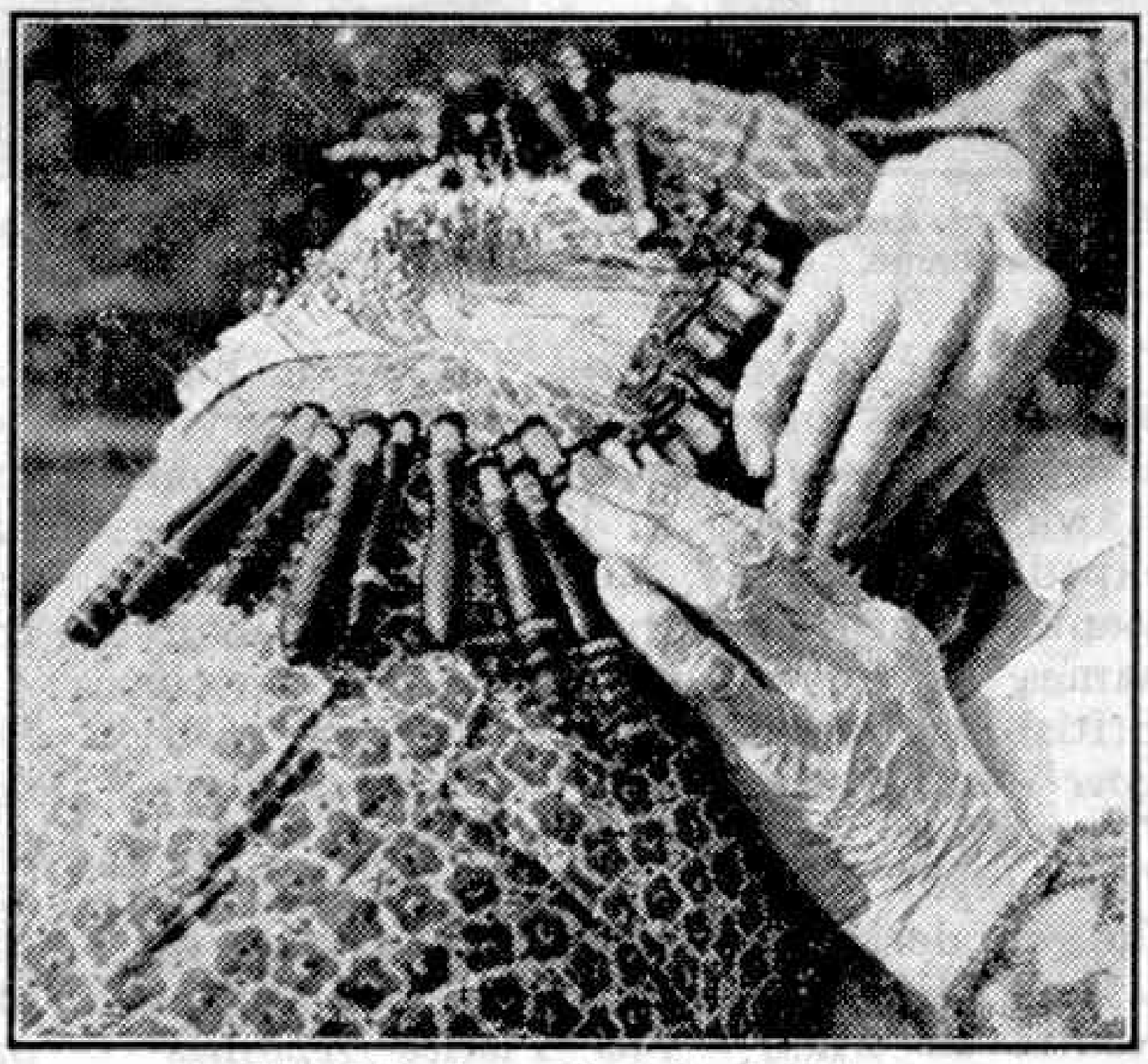
Buckinghamshire pillow lace-making is unfortunately a dying industry, and will disappear unless something can be done to encourage the schools in country districts to take up this beautiful old craft. In the villages of this county 50 or more years ago nearly every cottage had its pillow and bobbins. On long winter evenings several women used to gather together, sitting in a circle around a single rush candle, which gave a poor light for such fine work, but the strange thing is that very few had to resort to spectacles.

In those days before the advent of broadcasting, they used to transmit and receive the latest news bulletins with perfect success! Their central heating system consisted of a bucket containing hot cinders placed underneath their voluminous skirts, which made a nice draught proof covering down to the ground. Tea was an expensive luxury, costing as much as a shilling an ounce—a very big sum in those days. As it took a good lace maker a whole day to make a yard, which could be sold for about two shillings, they had to burn crusts of bread and brew that instead. Maybe the flavour of the latest gossip took their minds off that of their brew!

The actual making of the pillow lace is done from a pattern of holes perforated in parchment, remotely akin to the music roll for a player piano, except that it is only about a few inches long—the pattern being repeated every so often. Pins are placed in the holes in the parchment as the pattern proceeds, and the bobbins with cotton attached are twisted around to make the pattern. As the length of lace increases the pillow is gradually turned round; hence the round pillow and not a flat one.

The designs used vary from district to district and are often closely guarded secrets. Various patterns go under names like Town Trot, Fan and Maltese Cross. Perhaps if lace becomes fashionable again we shall see this old craft take on a new lease of life, and thus help to renew interest in the old crafts which have been carried on for so many centuries.

This short description of the arts of chair-making and of lacemaking will, I hope, create some interest among readers, and I would urge everyone who possibly can to make a photographic record of any old country craftsmen they may see and of their work. This is urgent in order to preserve for future generations something which is the very essence of our national heritage.



Skilled fingers adjust the bobbins.

The Romance of Ship Names

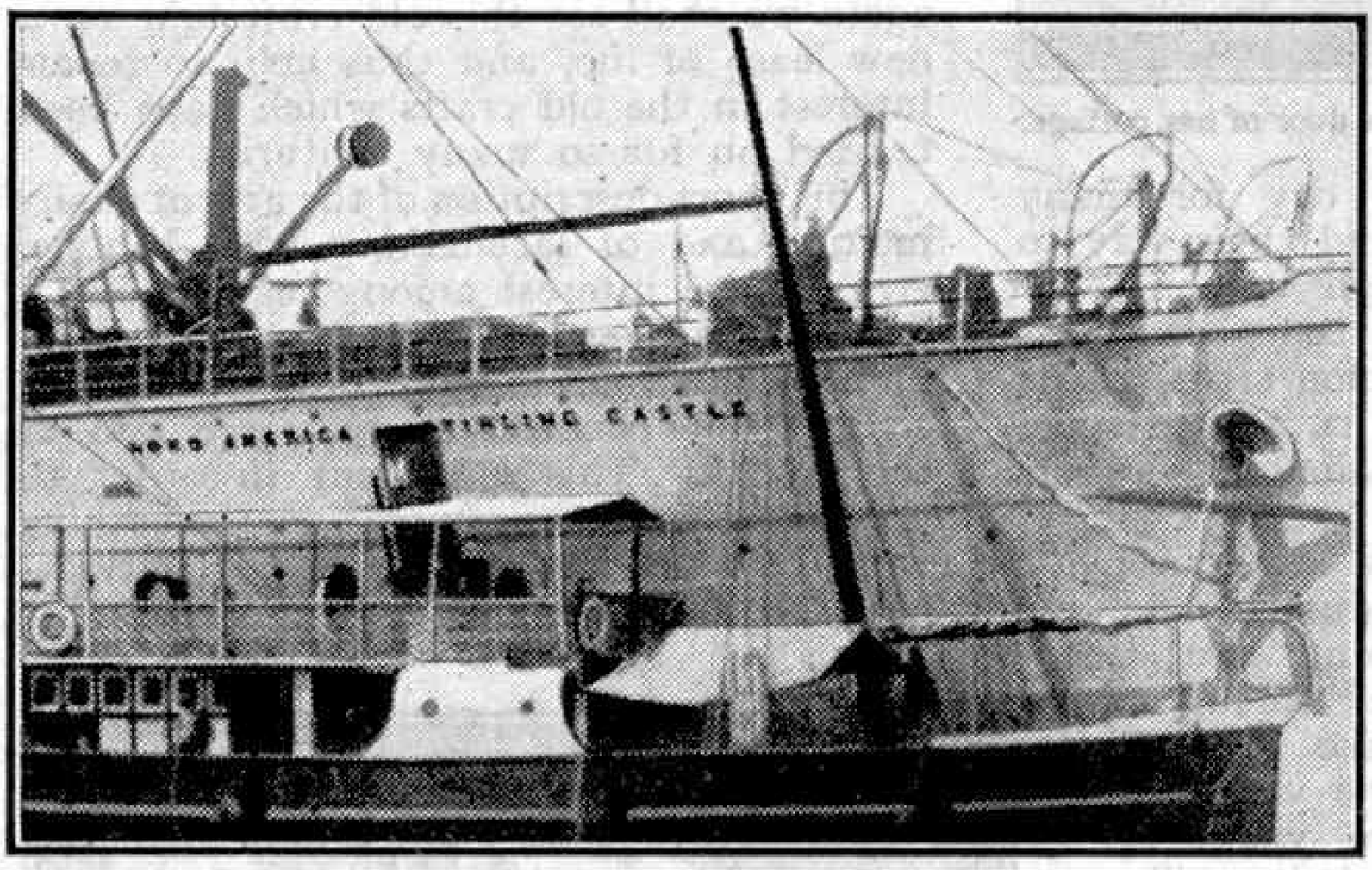
By Frank C. Bowen

THE subject of ship names is one of great interest with more than a little romance in it and it is also one of great importance to merchantmen, even cargo vessels, as well as men-of-war. The naming of ships goes back to the earliest days of recorded sea history, and from the beginning names have meant an immense amount to everybody concerned.

In pre-Reformation days English ships favoured religious names just as they have done in Southern Europe ever since. The *"Holy Ghost"* and *"Holy Cross"* were units of the Cinque Ports fleet in 1299, when it is to be feared that the piratical reputation of the portsmen made such names very unsuitable. Henry V had another *"Holy Ghost,"* alongside the *"Jesu," "Peter and Paul,"* when he built up his Navy out of the Merchant Service and the *"Jesus of Lubeck"* was Sir John Hawkyns' flagship in his second slaving expedition of 1564. Well into the nineteenth century there were still many names of a religious character on the British list such as the *"Noah," "Brotherly Love"*—a favourite name with smugglers—*"Samaritan," "Hope," "Cherub"* and *"Blessing."* They were prominent among the wonderful little Welsh schooners for a long time, occasionally with curious results as when *"The Twelve Apostles"* of 1858 came to grief at Hell's Mouth, Carnarvonshire.

Heraldic names were very popular in the fifteenth and sixteenth centuries and some of the oldest names in the Navy List first appeared through merchant ships or privateers being purchased bearing names signifying the crests of their owners or their owners' patrons. The ship in which Drake circumnavigated the globe was first called the *"Pelican,"* after the crest of one of his patrons, but he changed it to *"Golden Hind"* in the course of the voyage after the crest of another patron who was likely to have more influence with Queen Elizabeth.

Nowadays practically every shipowning company of any importance or standing has a definite system of nomenclature but there were few cases of that more than about a hundred years ago. The reason is obvious. Before the days when big companies, like the Cunard Line or Royal Mail Steam Packet Company were established under royal charter, few individual shipowners owned more than two or three vessels of any size; bigger fleets were generally owned by syndicates of a number of people owning sixty-fourth shares and a managing owner who wanted to please all his associates in turn. Ships changed hands more frequently than they do nowadays and owners respected the seamen's old superstition that a change of name changed a ship's luck, so that it was seldom done unless she had something to live down.



The "Nord America" showing her old name "Stirling Castle" alongside her new name. Photographs to this article by Nautical Photo Agency.

When the Cunard and Royal Mail Steam Packet Companies started their services in the very early 1840s the former gave all its main line steamers names ending in –IA, while the latter chose the names of rivers. Before the end of the decade Smiths of Glasgow, now part of the Ellerman Group, had started using the prefix "City of"—which has

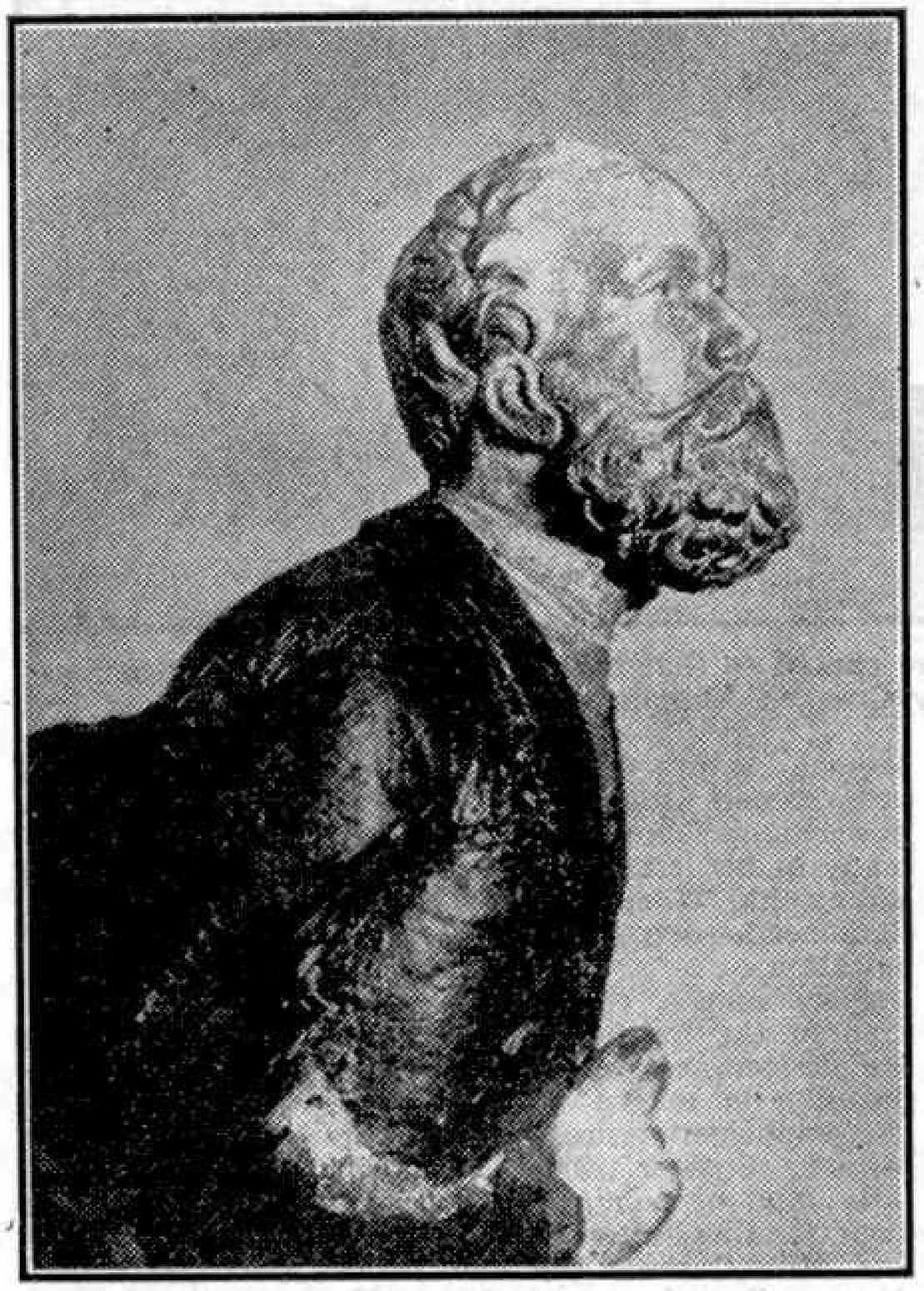


Figure made from a portrait of Samuel Plimsoll, to whom we owe the famous Plimsoll Load Line.

since been extended to several other sections of the Group. The General Steam Navigation Company did not adopt the bird system until considerably later. The Commonwealth and Dominion Line gave all its ships the prefix "Port"; as everybody called them the Port liners the Company eventually decided to adopt that as its official name. The Houlder Line named its ships after granges and chose them so that their initials, in chronological order, should spell out the name of their owners.

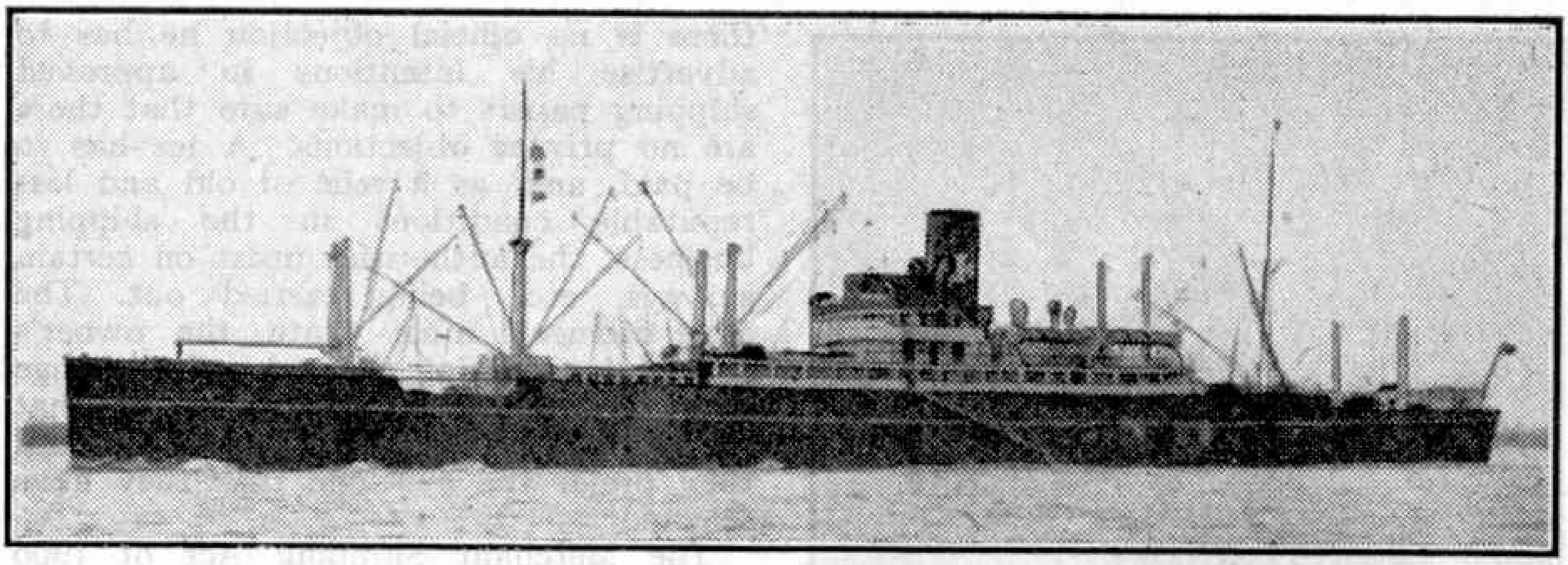
American owners also adopt regular systems but several companies have worked them into what might be called "portmanteau" names which seldom appeal to the British. Messrs. Moore and McCormack with such ships as the *"Mormacdove"* and *"Mormacgull,"* the Munson Line with the *"Munargo"* and *"Munmotor,"* the Delta Line with *"Delbrazil"* and *"Delorleans"* and others are examples of this.

These systems frequently demand changes which are strictly controlled. A ship's name cannot be changed without the permission of the Ministry of Transport, as successors to the Board of Trade, and when the owner has ascertained that there is no official objection he has to advertise his intentions in approved shipping papers to make sure that there are no private objections. A fee has to be paid, and, as a relic of old and less reputable conditions in the shipping business, the authorities insist on certain surveys, etc., being carried out. The advertisement must state the owner's reason for wishing to make the change but comparatively few say frankly that they do not like the old name or that they prefer the new one that they have selected.

The Merchant Shipping Act of 1906 gave the authorities power to refuse to sanction a name already borne by a British ship, or liable to be confused with another, but duplication is allowed where a ship is being built to replace an older vessel of the same name, within time limits. When the Act was passed there were nineteen steamers and four sailing ships on the British register named *"Victoria,"* fifteen steamers and four sailing ships named *"Britannia"* and nine steamers named *"Neptune,"* all over 100 tons gross, with numerous small craft in addition.

Soon after the First World War one of the crack companies particularly wanted to give a certain name, fitting in with their system, to their latest big liner and sent in the official application without dreaming that there would be any difficulty. They were refused on the ground that there was already a ship of that name and when they pointed out that they had already searched Lloyd's Register they were told that she was not big enough to appear there. She was a wooden paddler of 77 tons gross, built in 1877; in order to secure the name the line had to pay a large sum for her and break her up—current report made it £5,000 for a vessel that was not worth £250 as firewood and scrap metal.

Occasionally the vendors insist that the ship's name shall be changed, either because they want to repeat it on their own list or because when a ship has won a great reputation for safety under their flag they do not want it besmirched by an accident on her last voyage to the scrappers. Some years ago, when several ships had come to grief on their way out to Italian shipbreakers with a last cargo of coal or old iron, this change was frequently effected very simply by chipping off the first or last letters of the ship's name with a cold chisel. Thus the *"Ballaarat"* made her last voyage as the



The Houlder Line ships, named after British granges, were chosen so that their initial letters spelt the name of the firm. This ship, the "Upwey Grange," supplied the "U."

"*Laarat*" and the "*Oroya*" as the "*Oro*."

Reference has been made to the seaman's superstition that a change of name will mean a change of luck, whether it has been good or bad. Purchasers of traditionally lucky ships who braved the superstition would often find it very difficult to secure a crew unless times were very hard, while those who bought ships with a bad reputation lost no time in disguising them. The steamer "*Daphne*," which capsized when she was launched into the Clyde in 1883 and drowned 124 people, was salved, repaired and renamed "*Rose*." The superstition was not justified in that case and after a number of accidents she was again renamed "*Ianthe*." Still her bad luck held and she was given the fourth name of "*Eleni*." That was successful at last; she had nothing but good luck and lasted for many years.

One modern reason for changing a ship's name is an unhappy first choice, either one which is difficult to pronounce or which invites ridicule or parody. Between the two wars the Cunard Company built a particularly useful ship named "*Tyrrhenia*," but she was not nearly as popular as she deserved to be until they changed her to the "*Lancastria*."

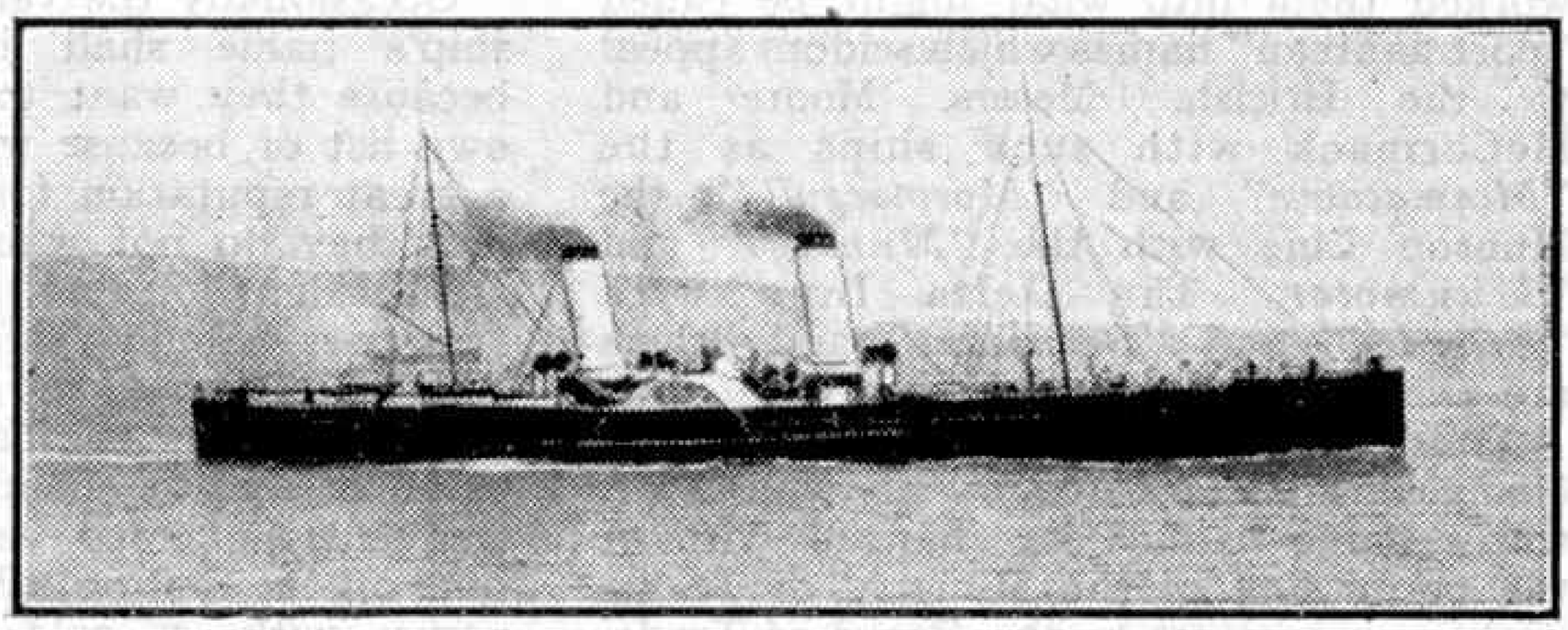
During the Nineteenth Century there were many curious names. It is difficult to understand the popularity of the name "*Abeona*" for British ships; there were ten in Lloyd's Register of 1838, which only listed the comparatively small proportion of ships which were classed in the Society, and as late as 1872 there were sixteen, large and small, in different parts of the Empire. It was a name which caused endless forecastle arguments as to its meaning and it is probable there was just as much guesswork as to what was in the mind of the owner of the Lowestoft schooner "*Six H's To The Queen*," which foundered in 1848. On the other hand there were also a large number of very poetical names which have gone right out of fashion; they were particularly popular in the clipper ship era and included the "*Spirit of the Morning*," "*Chariot of Fame*," "*Witch of the Wave*," and others.

Topical and political names can prove embarrassing. Duncan Dunbar named practically all his ships after battles in the Napoleonic Wars; when the French were our allies in the Crimea and chartered the "*Hougomont*" as a transport her name had to be changed in a hurry. Similar action had to be taken in several ships of the Soviet fleet which had been named after party leaders who had fallen from power and favour. Old George Thompson shocked many of his fellow shipowners when he named a fine sailing ship "*Samuel Plimsoll*" and gave her a portrait figurehead, soon after that gentleman's "coffin ship" agitation.

Place names, classical names—a sore trial to the man in the forecastle—and aboriginal names which are dangerous because they may have a secondary meaning in native slang which is not at all what the shipowner desires, are all popular with different owners. Coaster owners and fishermen are particularly fond of naming their vessels after members of their families, often linked together like the "*Agnes and Mary*," the "*Ann and Sarah*" the "*James and Margaret*" and many others. Many of the famous little Welsh schooners were named after their owners' financial backers or their wives; the "*Frau Minna Petersen*" is one to be remembered.

In the First and Second World Wars the immense programmes of standardised ships built by the British and United States Governments were all named on standardised systems. The British chose names beginning with WAR in the First War and with EMPIRE in the one just over; in each case they began well but became ridiculous when the selectors were reduced to the "*War Daffodil*" the "*Empire Tigity*" and the like. In both wars the Americans allowed themselves more elasticity by having a different system for each type of ship.

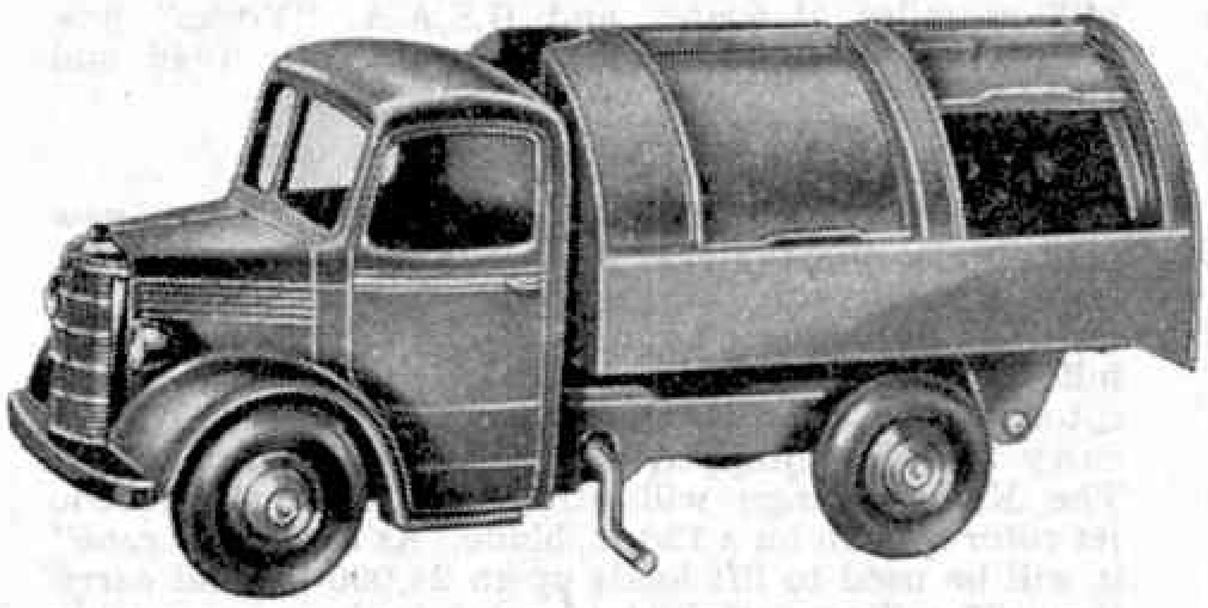
Any discussion on ship names will always bring up the meaning of the word "Maru" which has been put after the name of every Japanese ship built since Western designs were adopted. It is a word with so many different meanings that the Japanese themselves cannot be definite as to which is intended. In the old days, when they were always ready to laugh, the interpretation (*Continued on page 366*)



The London, Chatham and Dover packet "Calais-Douvres" of 1887 was given that name as a compliment to the French.

Dinky Toys and Supertoys

Refuse Wagon and Dumper Truck



Dinky Toys Refuse Wagon No. 25v.

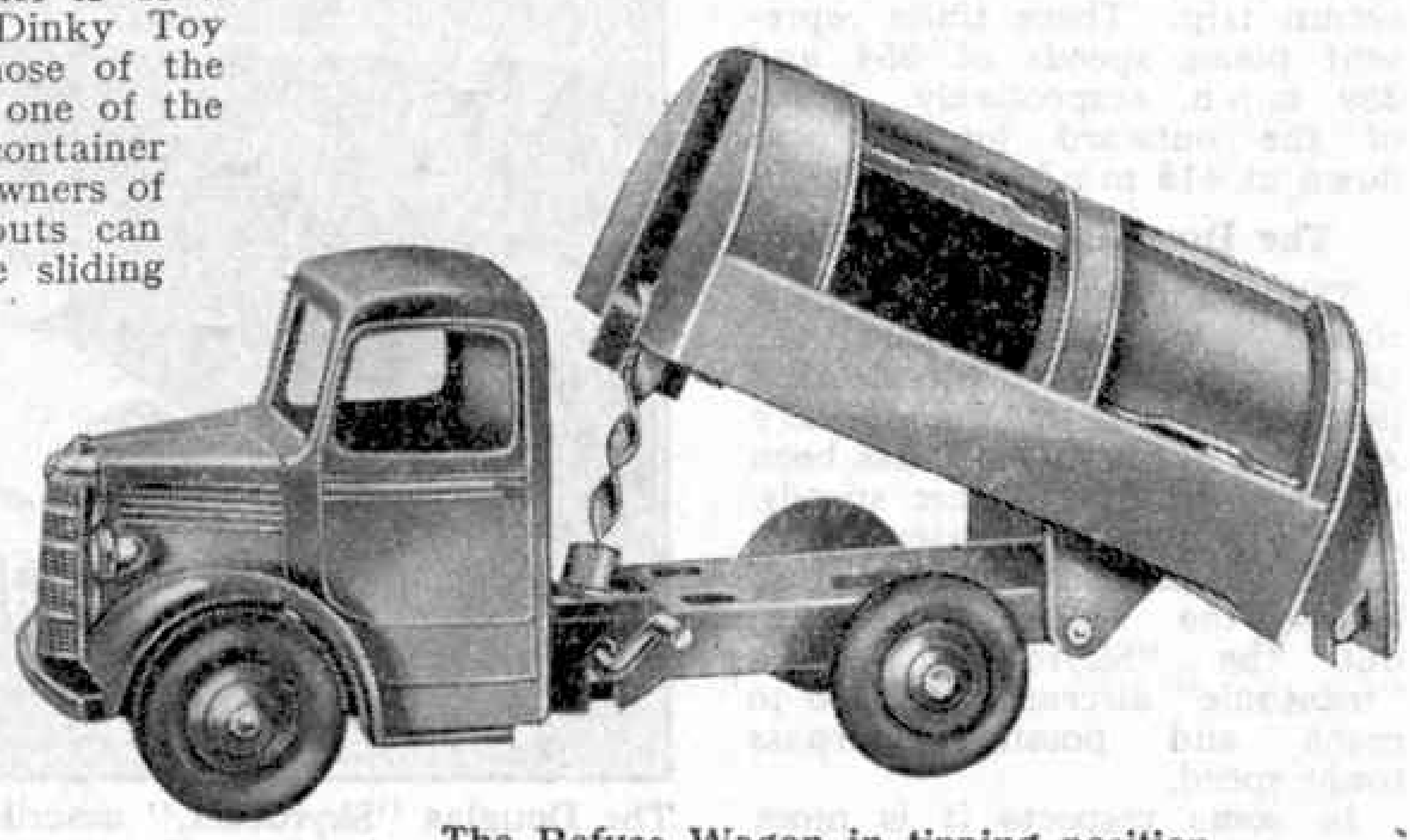
THIS month's new Dinky Toy is a particularly interesting one, both in regard to its appearance and finish and its construction. It is the Bedford Refuse Wagon No. 25v, of which two illustrations are reproduced on this page. This model is of a type that must be familiar to every Dinky Toy enthusiast. The chassis and cab are those of the Bedford End Tipper, which has become one of the most popular of Dinky Toys. The refuse container is provided with sliding covers, so that owners of model towns and other Dinky Toy layouts can introduce it with complete realism. The sliding covers work perfectly. In practice one at a time is opened for filling purposes. There is no need to push the refuse about to fill up the container. When one end of the body is full its cover is simply pulled down and that over the other end is then opened.

Emptying the refuse wagon is an easy task. The hinged door at the back is opened and then the handle on the near side is turned to raise the front of the container, when the contents slide out. Sand or perhaps clean dry soil can be used to represent the refuse.

The illustration at the foot of the page shows another splendid introduction, this time in the Dinky Supertoys series. It is the Dumper Truck, No. 562, a very handsome production that every enthusiast will want to possess because of its impressive appearance. Like the Dinky Toys Refuse Wagon, it has several interesting movements that will add very greatly to the fun of using it, and make it genuinely useful in Dinky Toys schemes where material has to be moved or in which excavation is being carried out. The possibilities of play with it indeed are endless.

The idea of the Dumper Truck is to move material such as soil, sand or gravel easily and quickly. The model reproduces faithfully all the points that make the original so useful. It has a well-shaped bucket, of a type easily filled by means of a mechanical shovel or grab, and this can be tipped to deposit its load. The dumper truck of real practice is a powerful machine, and the sense of power is well conveyed in the model by the large bonnet, which suggests a powerful engine.

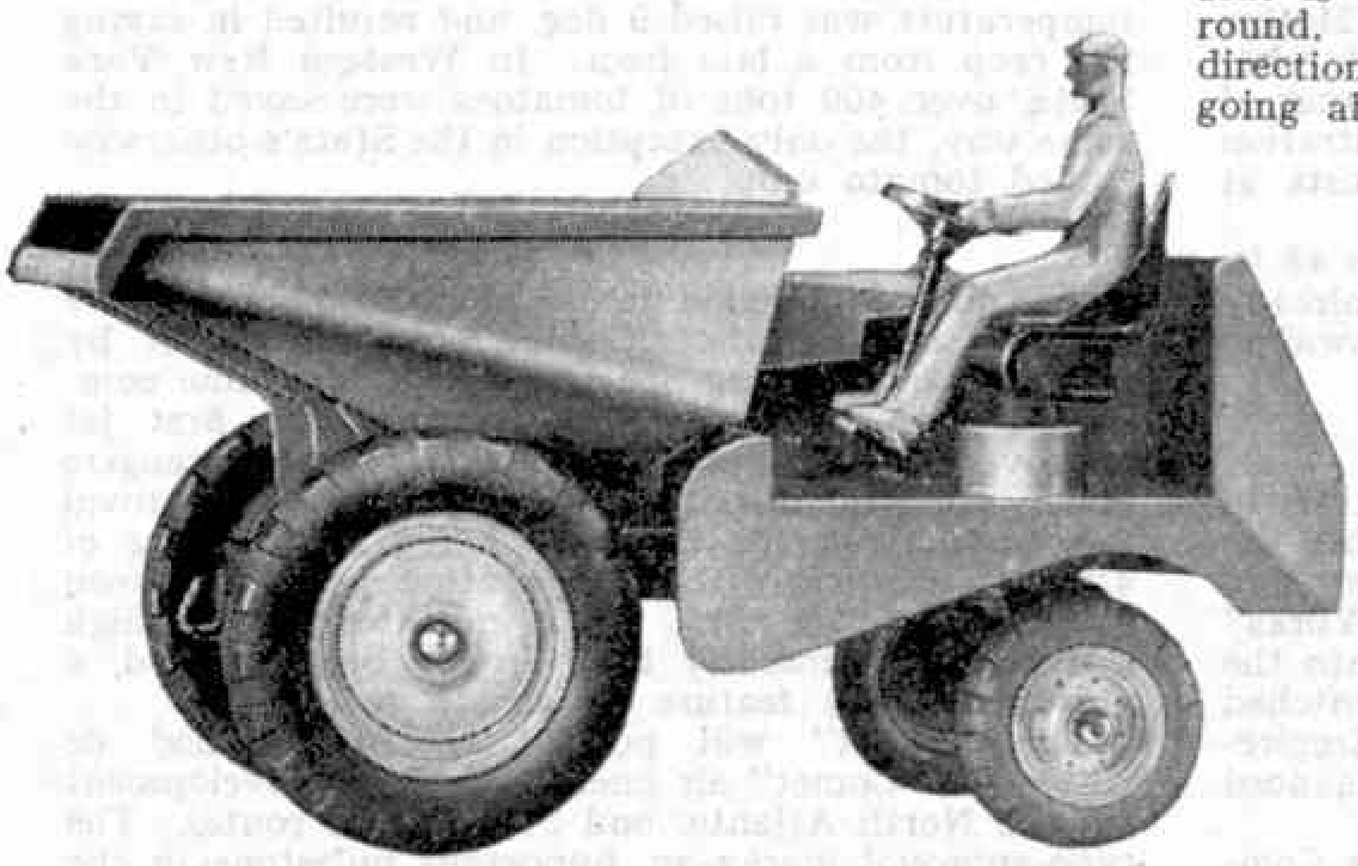
An outstanding feature of the original and also of this fine new Dinky Supertoy is the way in which it can be run either backward or forward. The dumper truck usually has to be backed into position to receive its load or to tip it, and to ensure that this can be done easily and with certainty the driving seat is made so that it can be turned completely round. The driver in fact looks naturally in the direction in which the truck is moving, whether going ahead or astern, and driving backward is as easy and certain as driving forward.



The Refuse Wagon in tipping position.

This valuable feature is preserved in the model. When the time comes for backing up to a dump to tip the load, the driver on his seat can be turned round completely to face the back, as shown in our illustration. The load is then tipped, and before the truck is driven away the driver can be turned back again to face in the forward direction, just as the driver of the real dumper truck does.

A further advantage of the new model is that its movement is not restricted to straight courses forward and backward. The front axle, that under the bonnet of the truck, can be adjusted to give curved runs either to the right or to the left, so that there is a wide variety of movement that can be adapted to the layout of various schemes in which the truck is employed.



Dinky Supertoys Dumper Truck No. 562, with the driving seat turned for running with the bucket in front.

Air News

By John W. R. Taylor

First "Propjet" Air Liner

The world's first airscrew-turbine air liner, the Vickers "Viscount," has been flying for ten weeks and has been described by her test pilot as "the smoothest and best machine I have ever flown." The "Viscount" is a 32–40 seater, powered by four Rolls-Royce "Darts." It has a pressurised cabin for operation at heights up to 30,000 ft., a range of 1,200 miles and a cruising speed of 285 m.p.h. Originally intended for service on B.E.A.'s Continental routes, it was recently dropped in favour of the "Ambassador." But we shall undoubtedly hear a lot more of the "Viscount."

Another Vickers jet-propelled air liner, the "Nene-Viking," was also in the news when it flew from London to Paris and back at an average speed of over 370 m.p.h. on Sunday, 25th July last, to mark the 39th anniversary of the first crossing of the English Channel by an aeroplane. The air liner was piloted by Capt. J. Summers and covered the 218 miles between London Airport and Villacoublay in 34 min. 7 sec. on the outward journey and in 36 min. 30 sec. on the return trip. These times represent mean speeds of 384 and 359 m.p.h. respectively. Much of the outward journey was flown at 415 m.p.h. at 12,000 ft.

The Douglas "Skyrocket"

The Douglas D–558–2 "Skyrocket," developed from the Douglas D–558–1 "Skystreak," present holder of the World's Absolute Speed Record, has been designed for even higher speeds. The "Skystreak" was intended for flight research at speeds just below the speed of sound; but the "Skyrocket" is a "transonic" aircraft, designed to reach and possibly surpass sonic speed.

In some respects it is more like the Bell X–1 than the "Skystreak," but it differs from the X–1 in two important respects; it is able to take off under its own power and it has sharply swept-back wings and tail surfaces. The "Skyrocket" is powered by a Westinghouse 24C jet engine mounted in the centre of the fuselage, and a Reaction Motors rocket unit in its rear fuselage. The air intakes and exhausts for the jet can be seen to the rear of the cockpit and wing respectively in the illustration on this page, while the rocket motor exhausts at the tail.

The "Skyrocket" has a span of 25 ft. and is 45 ft. 3 in. long. Its programme of test flying has already started, and details of its performance will be awaited with great interest.

"York's" Proud Record

The great part played by Avro "York" aircraft in the R.A.F.'s Berlin air lift operation highlights the outstanding record of this British passenger and cargo transport. Day and night, scores of "Yorks" have ferried many tons of assorted cargoes into the German city. Many of the machines were switched to this operation from Transport Command's Empire-wide routes where, since 1945, they have enhanced the reputation they earned in the war years.

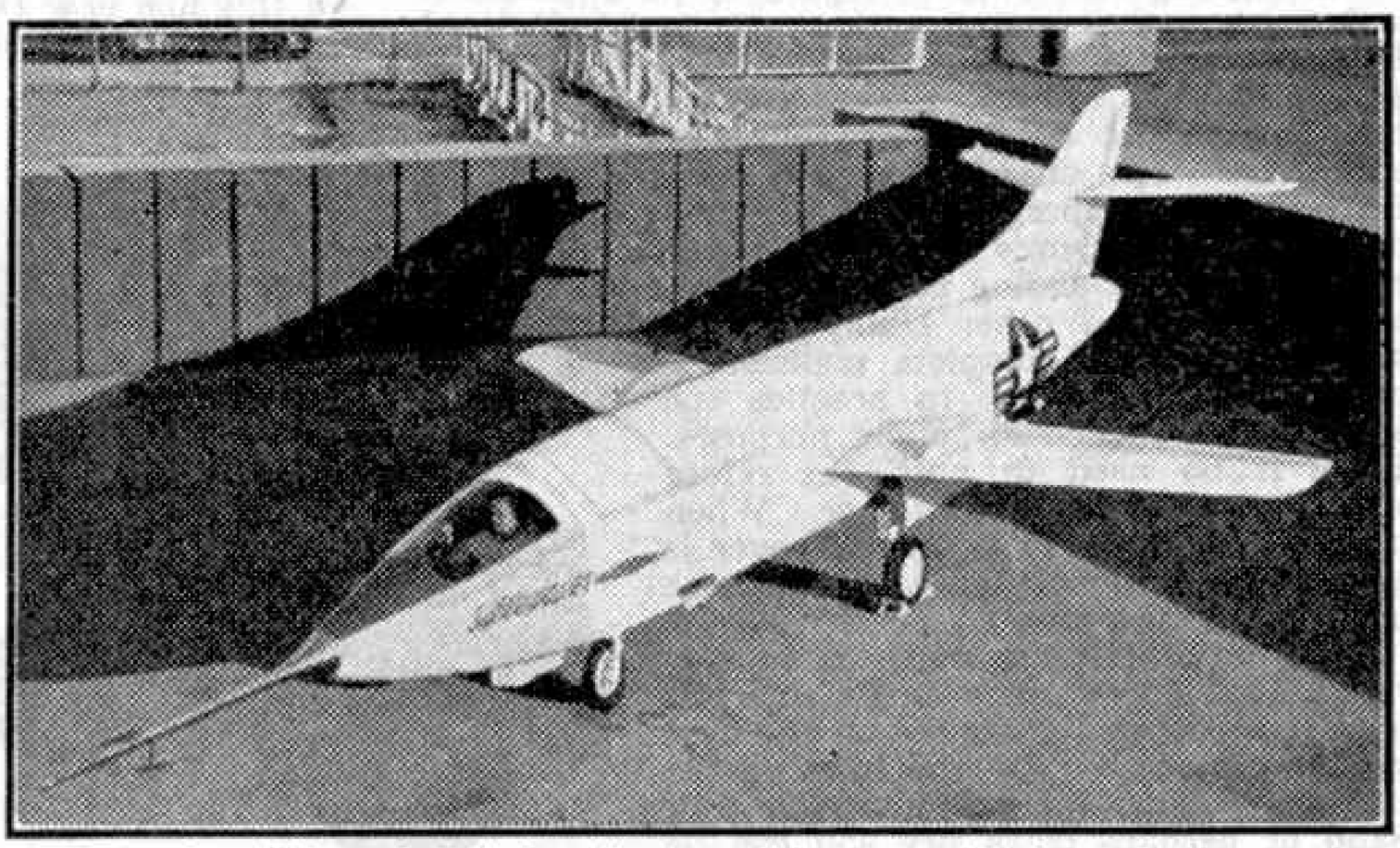
The overall operational figures of Transport Command, the major part of which is accounted for by "Yorks," are of such a staggering nature that they deserve a wider publicity than they have received. In 1945, 63 million passenger-miles were flown; in 1946, 111 million; in 1947, 60,800,000. The figure for the first five months of this year is 45,400,000. Of the total for these years, "Yorks" account for about 200 million passenger-miles.

B.O.A.C. and B.S.A.A. have had equally good service from their "Yorks." Up to the end of April this year, those with B.O.A.C. had totalled over 17 million miles of flying, and B.S.A.A. "Yorks" flew more than 4,303,000 miles between June 1946 and the end of 1947.

Helicopter Topics

The U.S.A.F. has released details of two new helicopters, the Piasecki XH–16 and Kellett XH–17, both considerably larger than any helicopter at present flying in America. The Piasecki design follows the familiar "Rescuer" banana-shaped, dual-rotor layout, but is about twice as large. It will carry 25 fully-equipped troops or 5,000 lb. of cargo. The Kellett design will utilise the General Electric jet rotor system on a 130-ft. blade. As a "flying crane" it will be used to lift loads up to 24,000 lb. and carry them 65 miles—sufficient to get a tank across a wide river or stretch of difficult jungle.

Meanwhile the well-proven Sikorsky S–51 continues to win laurels on unusual assignments. In Western Pennsylvania one was flown over extensive orchards to provide circulation of the air and so prevent a frost that would have ruined the entire yield. According to the Fruit Growers' Exchange, the temperature was raised 9 deg. and resulted in saving the crop from a late frost. In Western New York State, over 400 tons of tomatoes were saved in the same way, the only exception in the State's otherwise ruined tomato crop.



The Douglas "Skyrocket," described on this page. Photograph by courtesy of the Douglas Aircraft Company, U.S.A.

Spectral Progress

The first jet engine to be officially approved for military service, the "Goblin," was produced by de Havillands during the war. Now the same company's larger "Ghost" has become the first jet approved for civil operation with fare-paying passengers under Air Registration Board regulations. Approval has been given for the time being at a rating of 4,450 lb. thrust, with an operating period between overhauls of 250 hrs. This indicates that a high standard of reliability has already been reached, a most important feature for airline operation.

The "Ghost" will power the four-engined de Havilland "Comet" air liner, now under development for the North Atlantic and other trunk routes. The type-approval marks an important milestone in the progress of this project, which in the 1950s will double the airline speeds of to-day.

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With the exception of those issued by the Scientific and Children's Book Clubs, which are available only to members, and certain others that will be indicated, these should be ordered through a bookseller.

"CENTENARY OF THE IRISH MAIL 1848-1948"

By V. Stewart Haram
(The Railway Executive, L.M.R. 2/6)

The "*Irish Mail*" is a service with a tradition dating back to Elizabethan times, and the rail service itself is now 100 years old, for it was on 1st August 1848 that the Irish Mails were first carried from London to Holyhead by train, except for the section between Bangor and Llanfair. Until Robert Stephenson's splendid tubular bridge across the Menai Straits was completed in 1850 this intermediate stage had to be performed by road coach.

The 100th birthday of the railway has been marked by the appearance of this excellent book, which unfolds the fascinating story of the Irish Mail from the days of travel by road and sailing packet to the present time. It describes the coming of trains and steam vessels, and tells of the apparatus for the exchange of mails at speed, of the introduction of water troughs to enable engines to pick up water without stopping, and of improvements in port, train and steamship accommodation and equipment.

The presentation and printing are of a high class and the illustrations excellent. A map of the "*Irish Mail*" route forms the frontispiece, while the cover bears an attractive coloured sketch showing a platform scene of the train's early days.

Copies are obtainable from British Railways, Regional Press Office, Room 400, Euston House, Eversholt Street, London N.W.1.

"BLACK GULL"

By Derek Lamport (Harrap. 6/-)

The Scilly Isles are the scene of this refreshing story of the adventures of youngsters on holiday there. There are three of them, staying with an aunt and uncle, and to their delight they discover a small hidden island which they promptly claim as their own for camping, swimming and boating. They soon find that there is adventure too in this splendid life. To begin with they are annoyed by trespassers, who later turn out to be cousins and useful allies. Then they rescue a boy who is being tortured by two young thugs, and this leads to real excitement, for they unmask a determined and unscrupulous villain who steals the plans of a new motor boat from its designer. There are many other unexpected twists and situations, and these the reader follows with increasing interest.

This well-written and delightful story is illustrated by four full page drawings of the island.

"LITTLE BROWN TALA STORIES"

By May Wynne (Harrap. 7/6 net)

Imagination and fancy play a large part in these delightful tales of the Indian jungle. The central characters are two children, Little Brown Tala and Little Girl Tulsi, who are aided in times of danger and need by their animal friends Beronda the Elephant, Amfoo the Ape, Tamali the Tiger and many others. They have adventures in many strange places, and on one occasion Tala flies through the air holding on to the tail feathers of Goli the Owl, whom he has rescued from a prison in which he has been trapped by the Speckled Mice. On another occasion Tala is very nearly swallowed by tigers, and there are stories about many other strange and magical creatures.

With its interesting illustrations the book will provide keen pleasure for all children, and many grown-ups too will read of the adventures of Little Brown Tala and his friends with real interest.

"MILE BY MILE ON THE L.M.S."

By S. N. Pike, M.B.E. (2/-)

This is a travel book made out in the form of a continuous route diagram, page by page, covering Midland Region journeys from Euston to Liverpool and from St. Pancras to Leeds respectively. Lineside details and the immediate surroundings of the railway are shown, so that the traveller can trace his journey literally mile by mile. Mileage figures and gradient profiles laid alongside the route map on each page allow the running of the train to be assessed with the aid of the simple speed estimation formula given. There is a station index, and tunnels, water troughs and the rivers and canals encountered are listed.

The book naturally will appeal strongly to the railway enthusiast and give him quite a "professional" knowledge of the routes described, and the casual traveller also will find in it much that will interest him.

Companion booklets deal with the Southern routes from Waterloo, and with the East Coast route from King's Cross. Copies of each are available from bookshops, bookstalls and newsagents, 2/- each, or direct from the author at 3, Canterbury House, Worthing, Sussex, price 2/3 including postage.

"NARROW GAUGE RAILWAYS OF BRITAIN"

By F. H. Howson (Ian Allan Ltd. 3/6)

The narrow gauge railways in Britain have always aroused special interest, generally because of their rather unusual character in comparison with standard gauge routes. There are not now very many such lines in this country, but some are still running. Two of these, the Romney and Ravenglass 15 in. gauge systems, are relatively modern and rather different in character from the rest, although almost every narrow gauge system has, or had a definite atmosphere of its own.

The book details the history, topography and general characteristics and the equipment of various narrow-gauge lines. Special attention is given to the unique remotely-controlled Post Office Tube Railway. The illustrations are ample in number, well chosen and reproduced, and the booklet ends with tables of dimensions of British narrow gauge locomotives and maps of selected lines.

Copies can be obtained from booksellers and most hobby shops, or direct from the publishers, Ian Allan Ltd., Mail Order Department, 33, Knollys Road, London S.W.16, price 3/9 including postage.

"WINGS OF THE NIGHT"

By George E. Rochester (Lutterworth Press. 7/6)

The author can always be relied upon to provide an exciting air story, and in "*Wings of the Night*" he has given us a very fine air thriller. It begins when Brig Barrington, late of the R.A.F., and his friend Jimmy Dixon drive their old two-seater car to a lonely part of the Lincolnshire coast where the former was stationed during the war. The great airfield there is apparently abandoned, but their search for an old friend who has mysteriously disappeared eventually centres on it, for it is being used by an unscrupulous gang who are out to steal the plans of a stratosphere aeroplane that is being developed in secret near by. Our two heroes are captured when they begin to investigate mysterious happenings on the deserted airfield, but after many exciting and dangerous adventures they succeed in wrecking the schemes of the gang and capturing the master mind behind its activities.

Electrolytic Tinplating

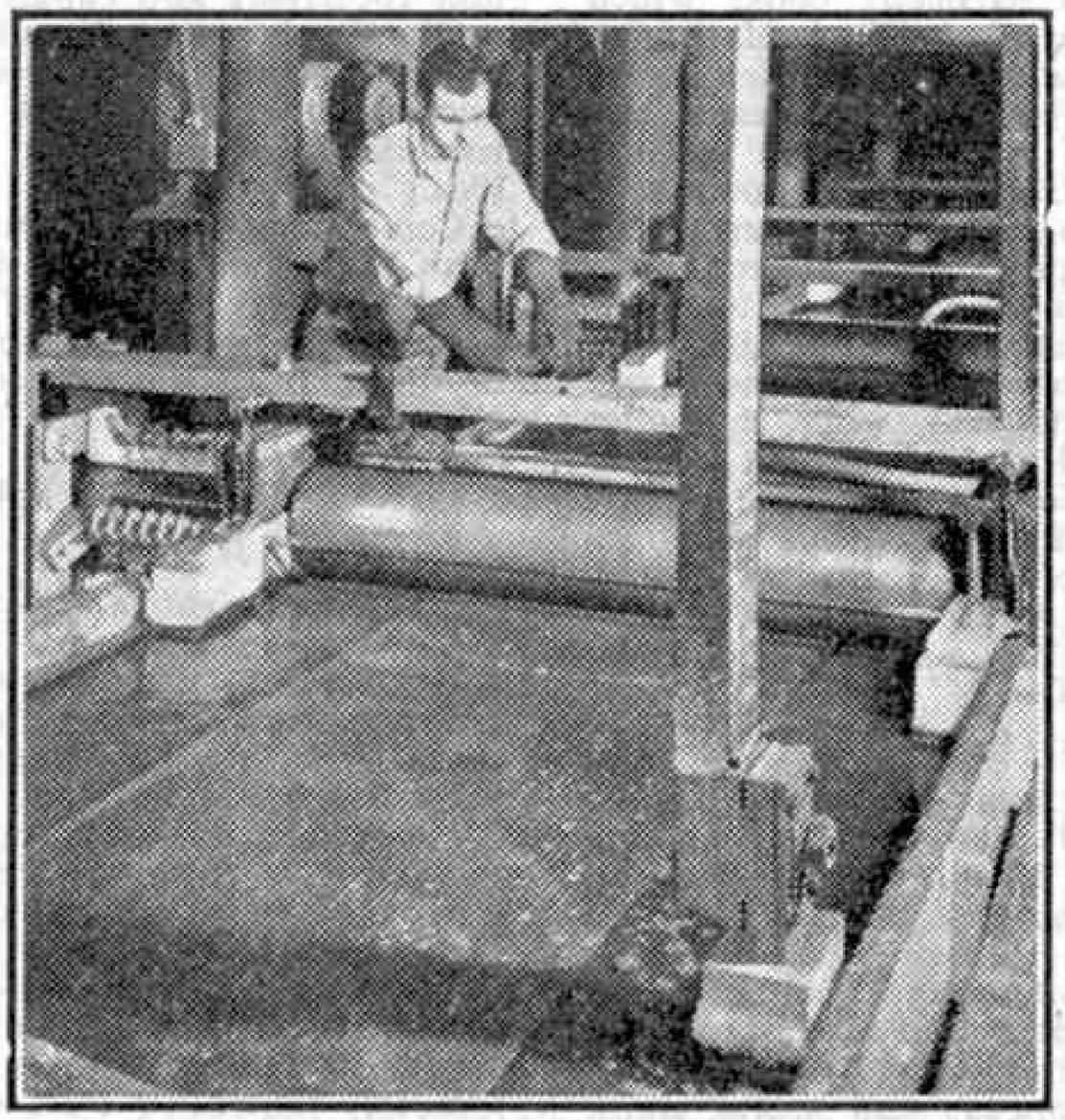
By M. Lorant

THE gap between the demand for tinplate and the available supply in the United States was bridged with the completion at Niles, Ohio, of the first of two continuous electro-tinning lines being built by the Republic Steel Corporation. The lines, 540 ft. long, will each have an estimated normal annual production capacity of 1,800,000 base boxes, a measure that comprises 112 sheets, containing 217 sq. ft. of tinplate. They will handle tinplate from 16 to 38 in. wide, and from 36 gauge to 22 gauge, that is from .007 in. to .030 in. in thickness. The finished product can be either rewound into coils or cut into sheets.

Preliminary estimates, based on regulations so far issued restricting the ordinary uses of tinplate, indicated that America's military and civilian requirements could not possibly be met because the present available supply of tin is rapidly diminishing, unless new plating methods were developed on a large scale to yield usable plate with considerably less than 1¼ lb. of tin coating for each base box. This is approximately the minimum which can be satisfactorily applied by the conventional hot-dip process.

Electrolytic tinplate with a ½ lb. coating comes closest to meeting the fundamental requirements. In addition to being a satisfactory substitute for hot-dipped tinplate, the use of the enamelled electrolytically tinned product is expected to effect a saving of two-thirds of the tin which would otherwise be required to produce the same amount of plate. Under the old method of tinplating, each base box required 1½ lb. of tin. With the new electrolytic process this will be cut to about ½ lb. The thickness of the tin coating with the electrolytic process to be used at Niles, is 30 millionths of an inch, and approximately 1,500 tons of tin a year will be saved through the new method when the plant is running at its full capacity.

A line running only 500 ft. a minute for 20 turns a week of 160 hours, would save about 750 tons of tin per year. Actually, the new lines at Niles have a normal operating speed of 500 ft. a minute, with a top speed of between 1,000 and 1,300 ft. a minute. On the basis of a coating of ½ lb. the two lines therefore will have no difficulty in reaching outputs of 3,600,000 base boxes per year.



Steel strip passing through the plating cells, where it runs between contact rolls. Each cell supplies part of the coating on one side only of the strip. The other is plated in cells on the upper deck of the plating section.

The installation of the new line involved a considerable increase in floor area. One building originally 420 ft. long by 76 ft. wide had to be increased 200 ft. in length. A second building 240 ft. long by 60 ft. wide was increased 160 ft. in length.

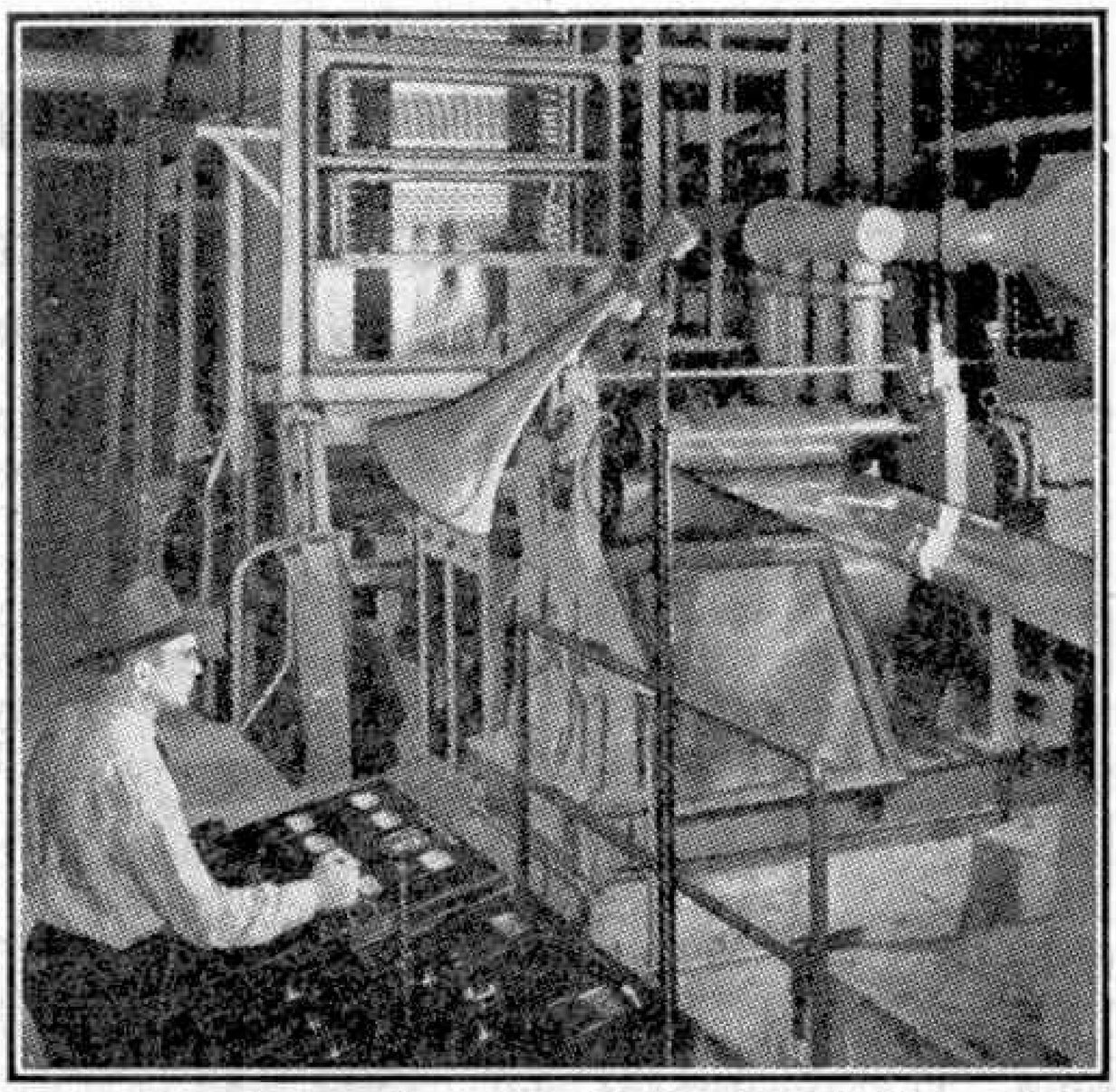
One of the most ingenious features of the new line is a heating method by which the dull tin coating is melted to obtain a bright finish. This is an application of induction heating. The high frequency current output of the power equipment required to operate it is equal to the output of 48 normal radio stations.

In wiring up these two electro-tinplating lines, a total of 141 miles of copper wire and 17 miles of conduit were required. More than 500 rotating machines are used, with over 400 indicating electrical meters, and 26 temperature indicator-controllers are required.

The electrolytic tinning line is essentially a continuous process which takes the strip steel in coil form from the cold rolling mills and after side trimming, cleaning

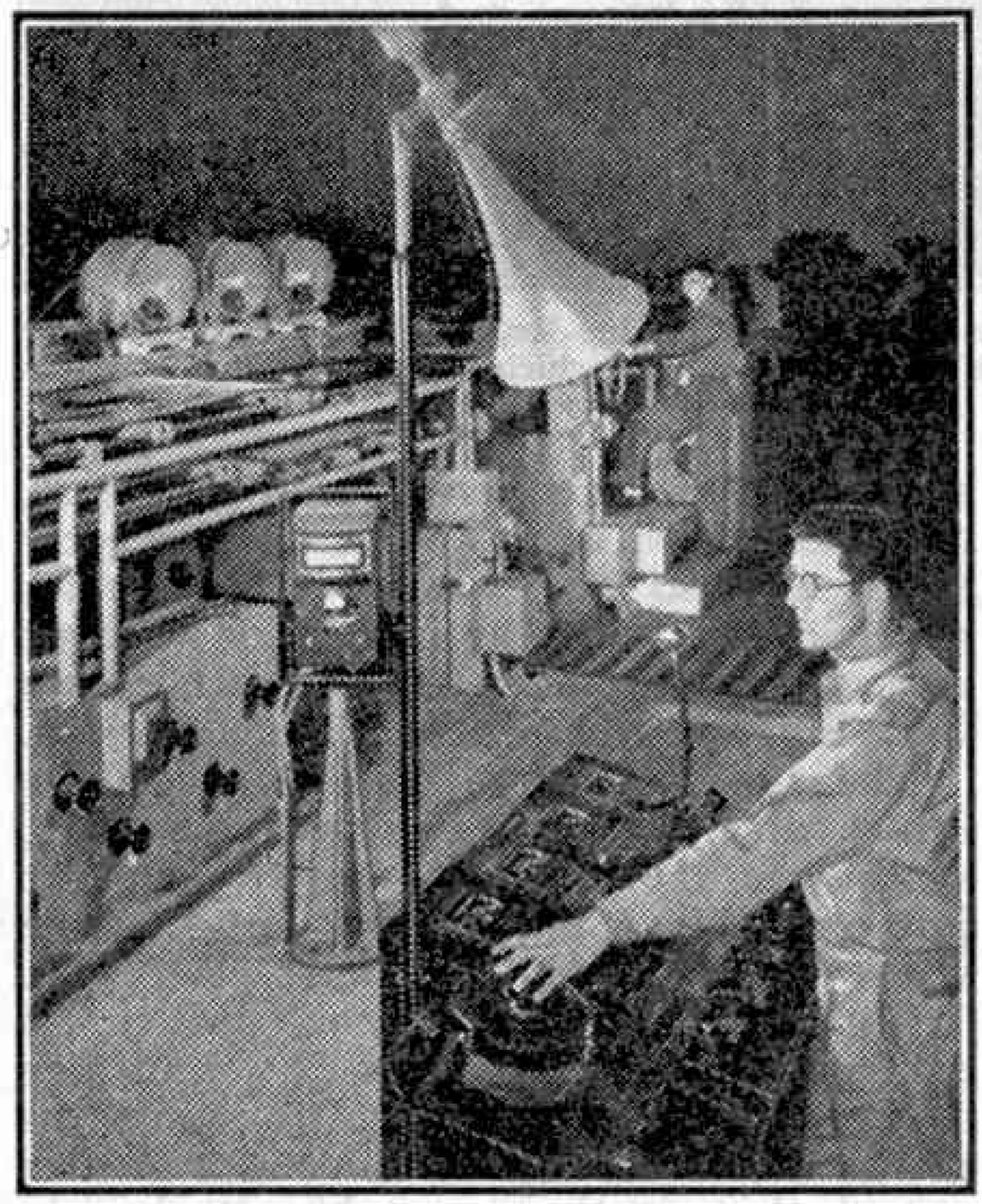
and pickling, deposits tin on the strip electrolytically. Copper oxide rectifiers are used in the Niles installation to supply direct current for depositing the tin on the steel from a cast-tin anode, and this is the largest installation of low voltage rectifiers for plating in the world.

Like the continuous rolling mill, the continuous electro-tinning line must deliver a quality product at a relatively high speed and with a minimum of interruptions for adjustment or repair of equipment. One of the most important considerations is the accurate relationship which has to be established and maintained between the current density used in the plating bath and the speed with which the material is moved through it. Furthermore, to obtain the maximum production out of the equipment, it has been found that this speed must be maintained at as high a value as is consistent with the production of high quality product. These requirements have presented some knotty problems from the standpoint of the synchronization and control of the many drives operating in tandem.



Melting the tin deposit on the strip to give a bright metallic coating. This is done by the induction melting units in the background. The horn is part of the inter-communication control system.

In the Niles installation, the strip enters the tinning line from one or the other of two uncoilers which are used alternately. When a new coil is welded on to the trailing end of a preceding coil, the line is first slowed down to a point which represents the highest speed, approximately 100 ft. a minute, that can be maintained and still have the double-seam weld complete before the entire loop is removed from the looping pit, which dips 40 ft. below the floor level and provides reserve strip, so that plating can continue while welding is in process.



Sheets not of the right gauge are automatically diverted to a lower conveyor by this automatic micrometer at the delivery end of the cutting unit.

Approximately 875 ft. of strip are required to thread the line from entry to discharge end. Coils of 15,000 lb. weight and up to 62 in. outside diameter may be processed. Larger coils up to 30,000 lb. may be handled by making changes in the uncoilers. The strip handling equipment of the line is powered with 230 volt direct current motors using a variable voltage system for speed control and synchronizing. Each line receives its alternating current power from a unit substation placed as near as possible to the centre of the electrical load.

The equipment provided in these new electro-tinning lines has been made flexible enough to produce a tin coating of ½ lb. per base box at high speeds; yet it has enough plating capacity to produce the heaviest coating weights contemplated at present, at the normal operating speed of the lines. The result is a lustrous sheet that is used for food packing, including vegetables, meat products and fish, for milk cans and for bottle closures.

Have You Ever Thought About This?

How Does a Mechanical Stoker Work?

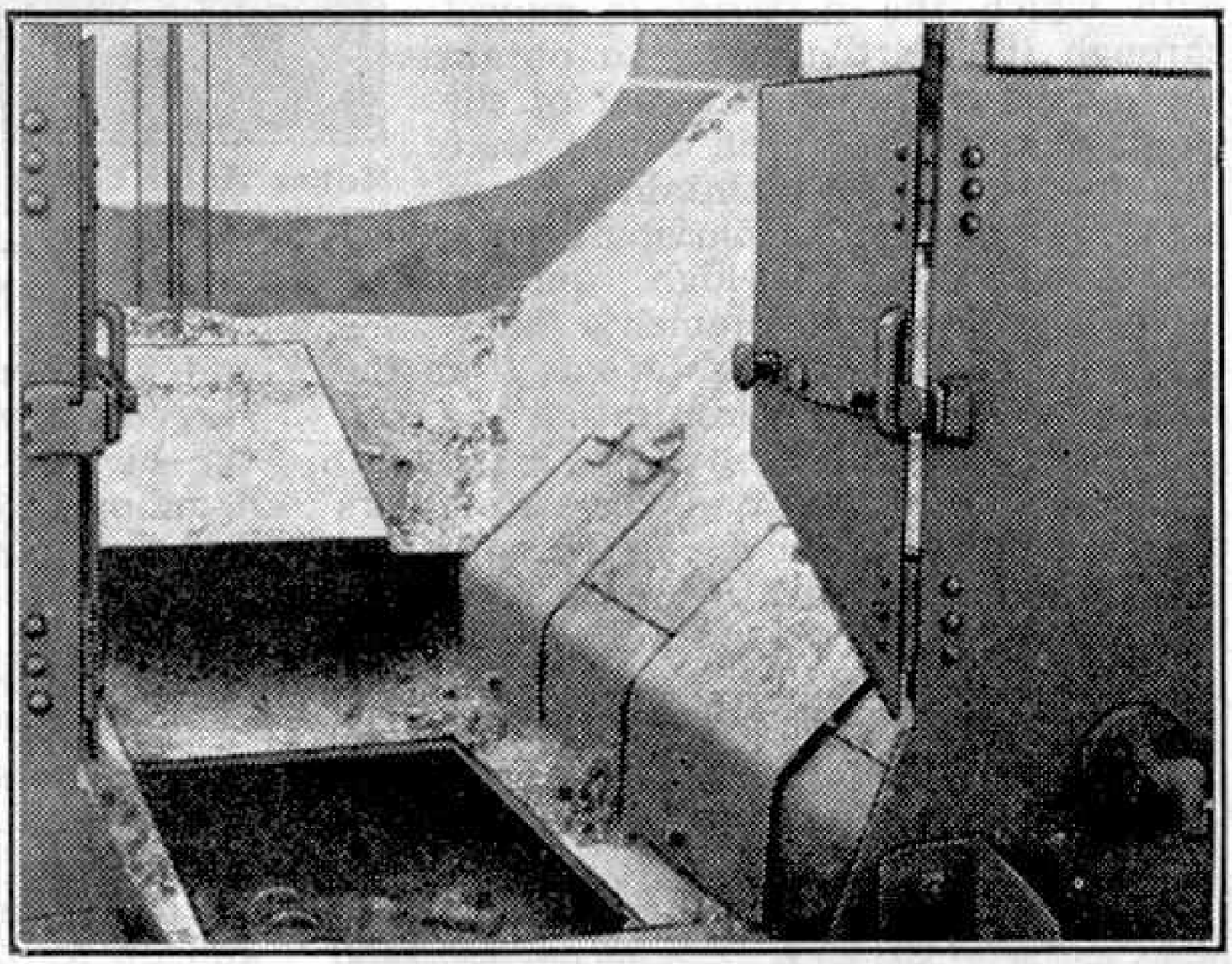
By "Shed Superintendent"

THE mechanical stoker or "Iron Fireman" has long been in use in the United States on locomotives, because the grates of their big engines over there are too large for hand-firing. So far it has not been necessary to use the device in this country. The installation of a mechanical stoker on Southern Region No. 35005 *"Canadian Pacific"* of the "Merchant Navy" class, announced in the June *"M.M.,"* is therefore an interesting event. This class of engine is of course hand-fired quite successfully. The experiment will show whether steam pressure can be maintained more consistently, when using poor grades of fuel, than with hand-firing, and at the same time some economy may result by virtue of the fact that feeding the fire at a continuous rate, instead of intermittently by hand, may give improved combustion.

The principle of the mechanical stoker is easily understood if one thinks first of all of the ordinary household mincing machine, which employs a coarse-thread (Archimedean) screw, revolved by hand. On a locomotive a long screw of this kind is placed in a trough in the bottom of the tender, and it is revolved by a small totally-enclosed two-cylinder steam engine. A large cast steel pipe leads from the trough in the tender to a mouthpiece bolted to the lower part of the fire-hole on the footplate. Another screw, connected to that in the tender by a universal joint, revolves inside the pipe. Coal in the tender feeds by gravity into the trough, where it is caught in the screw, crushed into chips, and fed along the pipe to the firehole.

The mouthpiece has four groups of steam jets, so arranged that when the crushed coal reaches the firehole it can be blown to any part of the grate. These jets work at 10–20 lb. of steam, and are under the control of the fireman. All the fireman has to do is to set the small steam engine in motion, and adjust the steam jets to give an even distribution of the coal in the fire-box. He can, if necessary, use a shovel and fire in the normal way if anything goes wrong.

The apparatus on engine No. 35005 is so neatly fitted that little can be seen of it by the casual observer. Our photograph shows the tender interior, empty of coal, and the trough in the bottom can clearly be seen; also the sharply sloped sides which ensure that the coal feeds without any attention from the fireman, other than breaking up an occasional oversize lump.



The interior of the tender on S.R. engine No. 35005, "Canadian Pacific" showing the trough in the bottom from which the coal is fed by a screw. Part of the screw is visible.

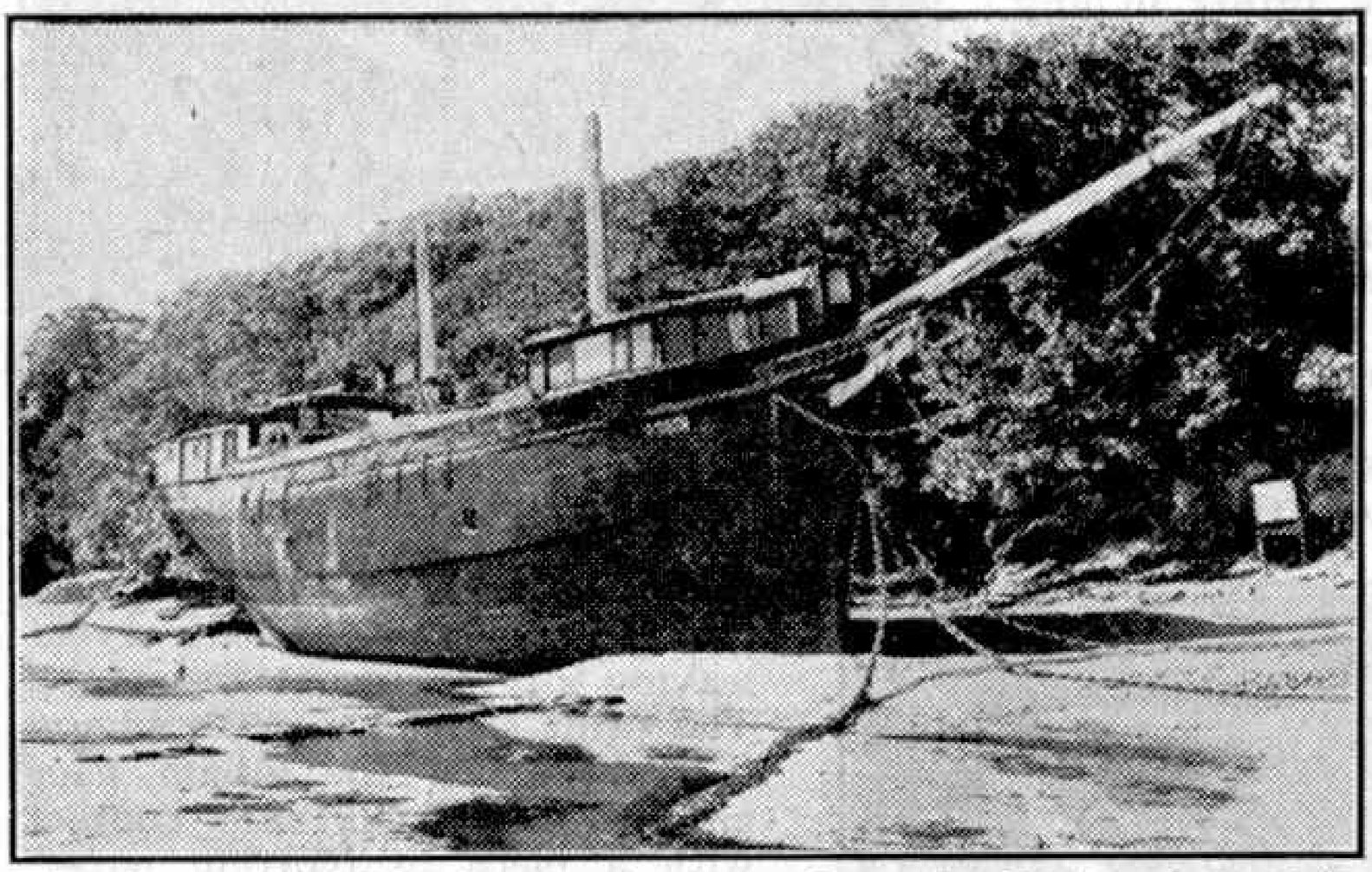
The steam engine which drives the screw can be reversed, by pulling a lever, so that in the event of any stoppage or jamming by some foreign object, the screw can be rotated backwards to free it. The manipulation of the mechanical stoker can be carried out from the fireman's seat and this enables him to assist his driver in reading signals to a much greater extent than is the case when he has to do the firing with a shovel. No. 35005 is stationed at Nine Elms Depot.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

A TREASURE SHIP

In a creek on the estuary of the River Gannel, near Newquay, lie the remains of the schooner "*Ada*." She was the last ship to be built at Crantock, on the Gannel estuary, which is now a quiet village but was once a prosperous ship-building centre. No ships have been built at Crantock for over 100 years. The



The schooner "Ada" in the Gannel estuary, Cornwall. Photograph by J. H. Atkinson, Exeter.

"*Ada*" has seen service in all of the seven seas, and now lies, apparently derelict, bereft of sails and rigging, in the place where she was born.

On closer inspection, however, one will find that she is far from being a mere empty hulk. She is in fact a veritable treasure ship. Her cabins are filled with an amazing assortment of curios and treasures from all parts of the world. Musical boxes, swords, helmets that have been worn by famous generals, china, furniture, models of ships, and hundreds of interesting exhibits from the four quarters of the globe are here on view.

The accompanying photograph shows the "*Ada*" lying at her moorings on the Gannel at low water. Visitors to Newquay should make a point of seeing this old schooner with her amazing collection of curios, which will make every boy's eyes glisten with interest.

J. H. Atkinson (Exeter).

THE JOHORE-SINGAPORE CAUSEWAY

The causeway joins Singapore Island to the mainland of Malaya, and is a little over 500 yds. long. There is ample room on it for two-way traffic, with a pedestrian footpath on each side.

The structure of the causeway is of reinforced concrete and it is built solidly on the bed of the Straits of Johore that it crosses, that is it is not of pier construction. It is built with a very slight curve to the left as it is approached from the Singapore or south end. The left-hand side of the causeway slopes very steeply into the sea, but on the right-hand side the structure is of an entirely different nature. There a single track narrow gauge railway runs on a semi-attached structure, also of reinforced concrete, which is supported by concrete piles. Electric lights are placed about every 40 yds. on the left-hand side of the causeway, and these give ample light for all road users.

During the war in the East the causeway suffered heavy damage at the hands of British troops, as it was partly blown up in an attempt to stem the Japanese advance on Singapore. Unfortunately an engineering defect developed, and only about 20 ft. of the causeway, at the Johore end, was blown up. That has now been temporarily repaired by the use of "Bailey Bridge" construction. At present only single line traffic is possible, vehicles proceeding at greatly reduced speed, as is also the case with the trains which cross it.

At each end of the causeway there are Customs control points, as its ends are in different States. All vehicles are stopped and searched at both points for arms, ammunition and drugs, especially opium.

It is hoped to build a double track railway in the near future in place of the existing single one.

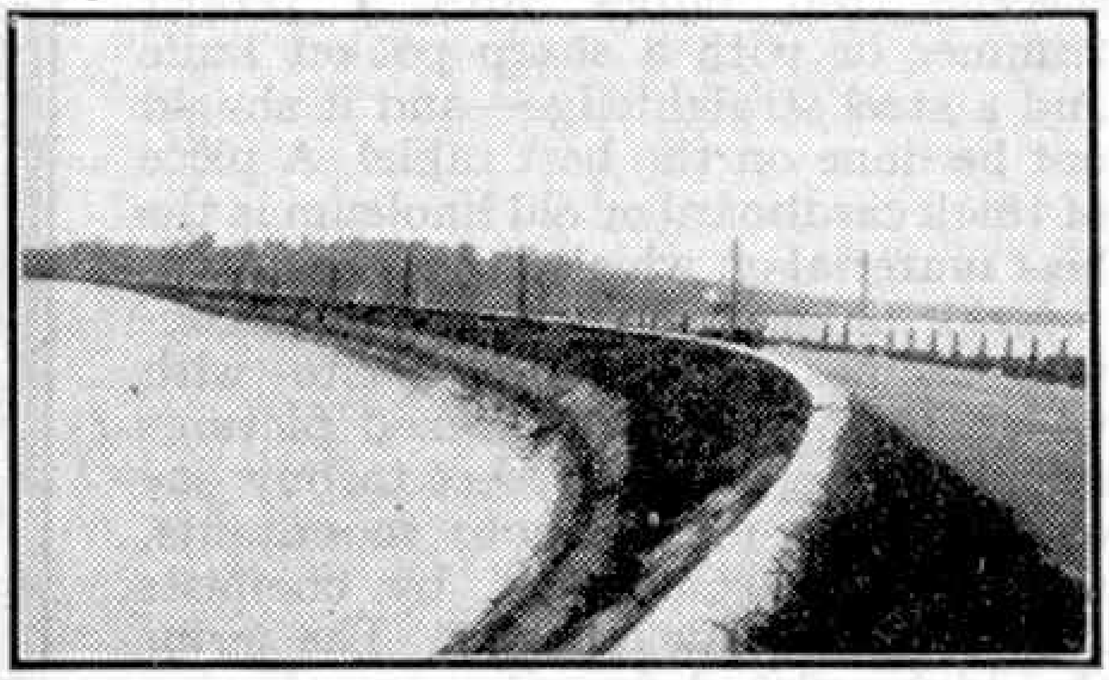
H. Brown (Glasgow W.4).

A STRANGE AUSTRALIAN SIGNBOARD

In Queensland, Australia, there is one of the world's queerest signposts. Across the top of the board the words "*Tropic of Capricorn*" are printed in large letters. The lower part of the board is divided into two parts, with arrows pointing in different directions. Above one arrow, pointing north, the words "*Torrid Zone*" are displayed, and above the other are the words "*Temperate Zone.*"

The signpost stands on the boundary of the two zones. The tropic of Capricorn, which is the name given by astronomers to this line, marks the most southerly points at which the Sun can appear overhead; this it does at the Australian midsummer.

Graham Burns (Wawagul, Victoria).



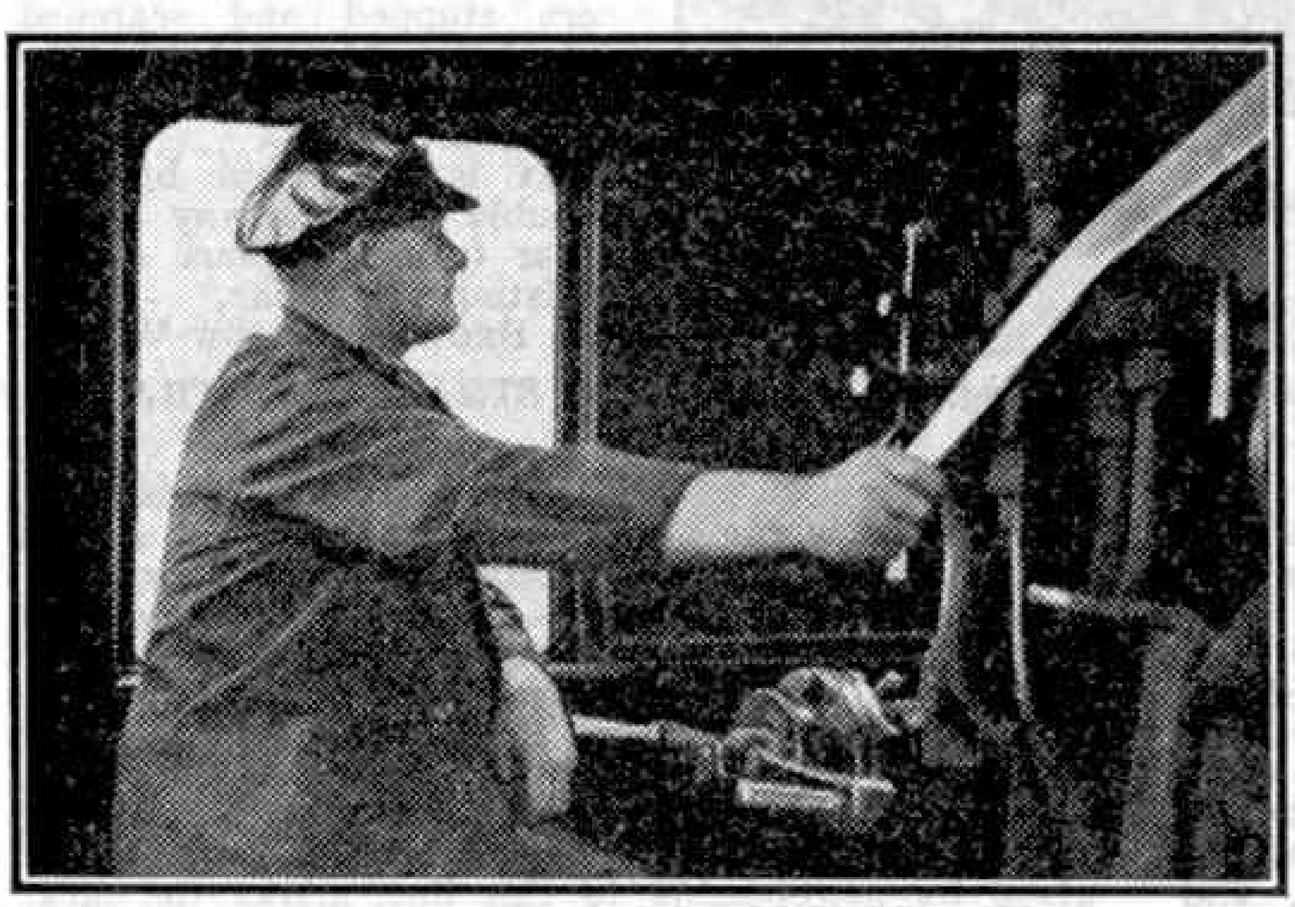
The Causeway connecting Singapore island with Johore, seen from the Singapore end. Photograph by H. Brown, Glasgow.

Photography

The Snapshot Album

NOW is the time to look over your holiday snapshots and decide which are worth including in an album—the only satisfactory way of preserving a collection of photographs. The album can be either the "slip-in" kind in which the prints are inserted into openings provided for them on the page, or the "paste-on" type in which we can mount the prints in any position we please. The drawback to the "slip-in" album is that the size and shape of the openings are fixed, and probably unsuitable for many of our prints. The "paste-on" album is free from this limitation, so that we can trim our prints to any proportions we like.

Trimming a strip off the top, bottom or side of a print, especially if the cut-away portion happens to be blank sky or plain foreground, often improves the picture.

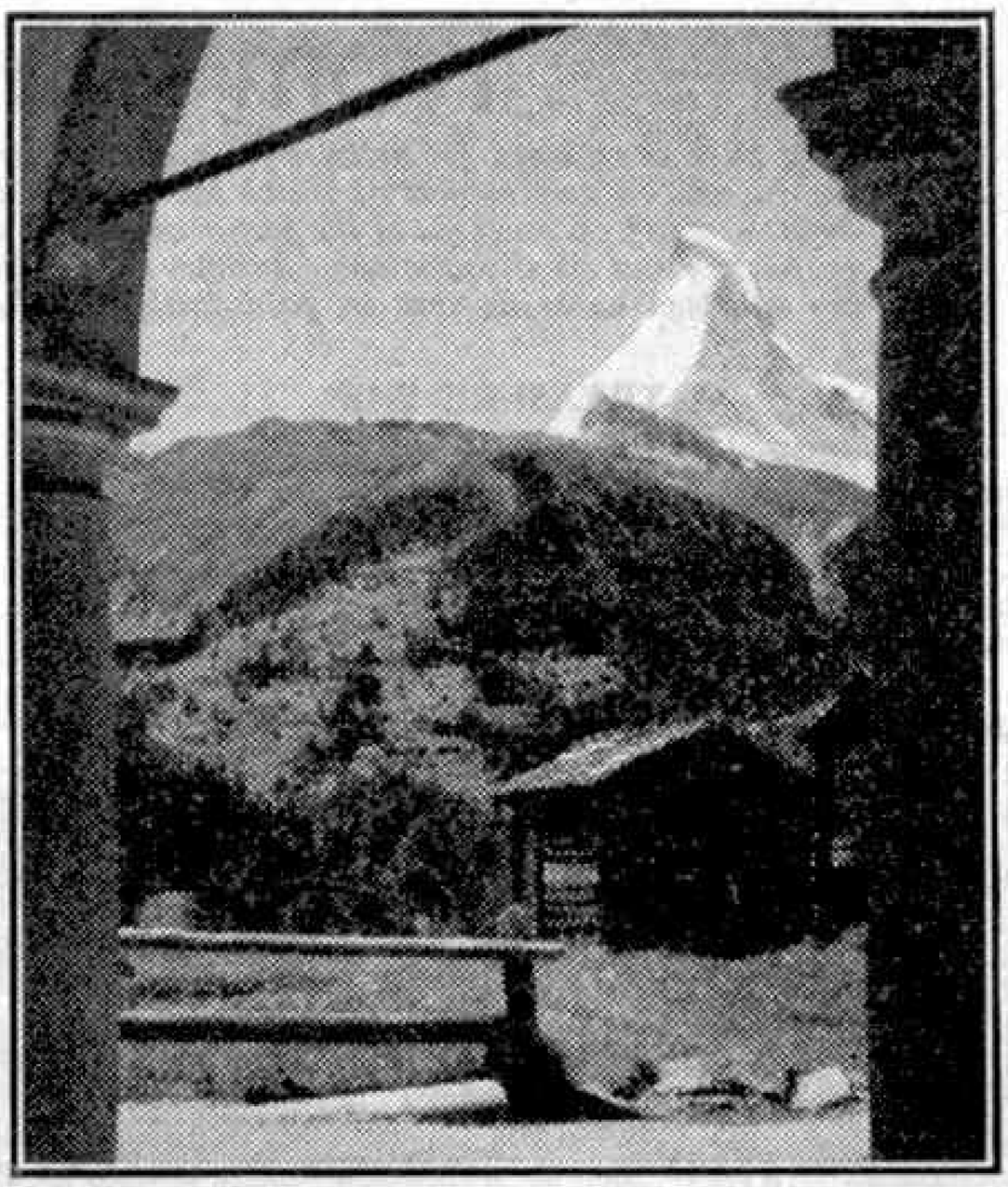


"On the Alert." Photograph by G. Ogilvie, Edinburgh 4.

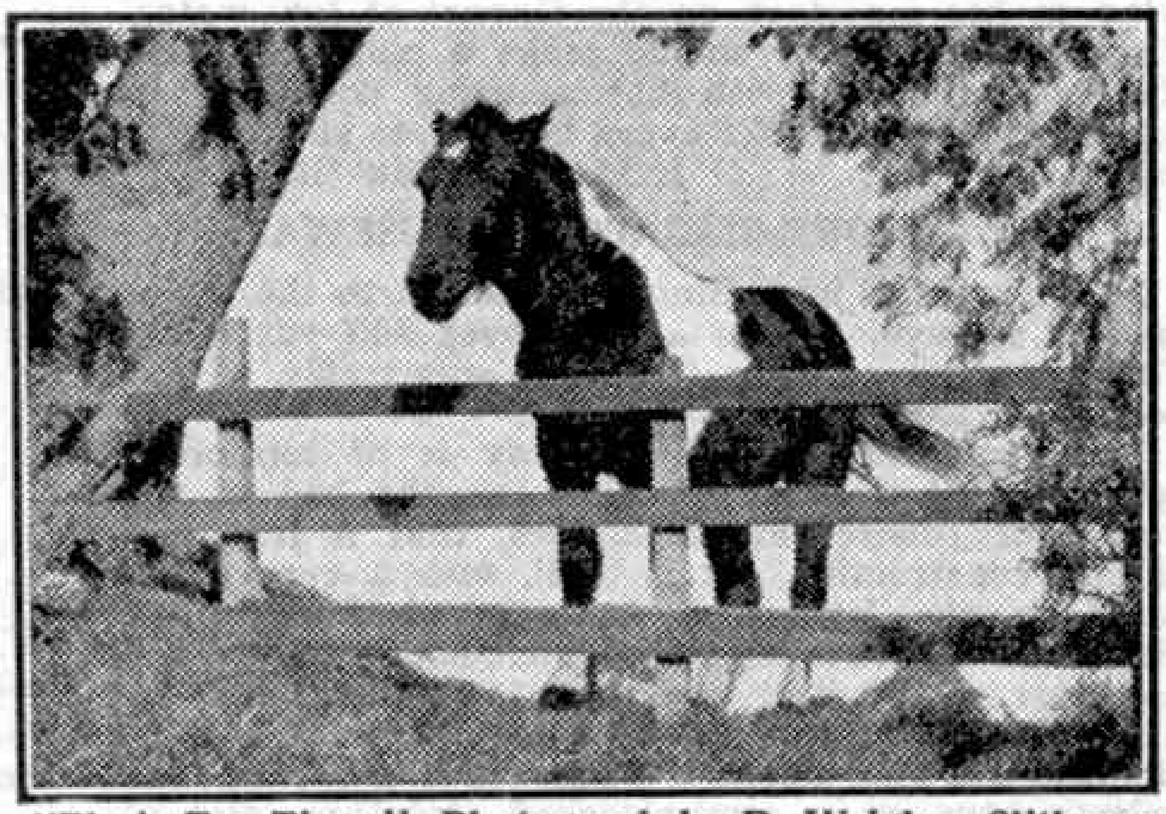
The trimming should not be done with scissors, but either with a proper trimmer or with a sharp pocket knife and a steel straightedge—and it should not be done on the best table! A piece of thick cardboard or old linoleum is the best material on which to cut the prints.

Most photographic handbooks contain recipes for making paste with which to mount the trimmed pictures in the album, but it is best to buy one of the ready-made photo mountants, such as Johnson's, sold by chemists and photographic dealers. The print should be placed face downward on a sheet of paper and the mountant spread over its back with the finger tip, care being taken to spread the paste evenly and to avoid leaving any excess at the edges. The print should then be placed in position on the album page and pressed firmly into contact with a piece of blotting paper, any paste that oozes out at the edges being wiped away with a clean rag. When all the prints have been mounted the album should be placed under slight pressure, such as several books, and left overnight.

Do not forget to add a note, giving at least the place and date, under each print. This may save argument later on.



The Matterhorn from Winkelmatten Church. Photograph by W. West, Beckenham.



"Tim's Tea Time." Photograph by R. Wrigley, Clitheroe.

Club and Branch News

WITH THE SECRETARY

HOW NEW CLUBS ARE FORMED

At the present time many enthusiasts are trying to form new Clubs or are thinking of making efforts to do so. This is a step in the right direction, for the full benefit of membership of the Guild can only be attained by joining a Club. Not all members live sufficiently near the headquarters of an established Club to do this, however, and in their case the solution of the problem is to form a new one.

Starting a Club is not a very difficult task. It should be kept in mind that a Club need not be a large one, with an elaborate organisation. There are many Clubs of this kind, of course, and these do magnificent work, but there are also many small Clubs consisting of say half a dozen or a dozen members, who get as much enjoyment and profit from their meetings, however informal, as do those of larger organisations. No Guild member therefore should hesitate to start out to form a Club in his own district among his friends.

There must be few Guild members who do not know other boys who are as keen on model-building as they are. The first thing to do is to look these out and to interest them in the scheme. Then arrangements of some kind are made for those attracted by the idea to meet together weekly, or even oftener, so that they can pool their ideas and combine resources, to indulge in model-building on a larger scale than is possible for any one of them with his own Outfit only. When this has been done the foundations of a Club have been laid. I am as greatly interested in these small associations as I am in the larger Clubs, and I am always glad to help them in any way.

• • • •

The Morden M.C. will hold its first Annual Exhibition on Saturday 13th November, in the Morden Assembly Room, Lower Morden Lane. All interested in Meccano Model-building or Hornby and Hornby Dublo Train operation are invited to the display, which will include Dinky Toys and Stamps in addition to Meccano Models and Hornby Train Layouts. Admission 4d. each.

BRANCHES RECENTLY INCORPORATED

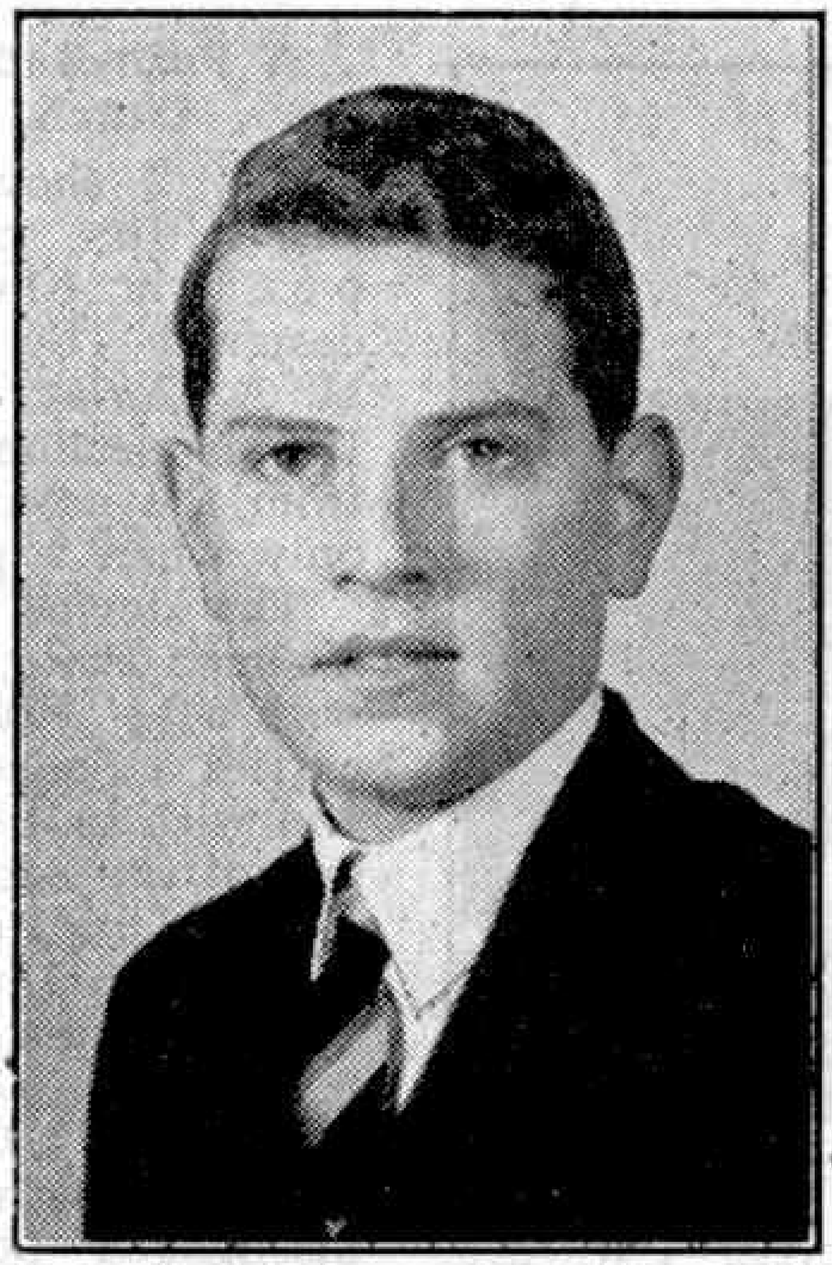
507—Hillel House—Mr. A. N. Fairbairn, 92, Glebe Road. Cambridge.

508—Morden—Mr. H. B. Moyer, 222, Melfort Road, Thornton Heath, Croydon, Surrey.

509—Shirley and District—Mr. H. C. Lavis, 60, Copse Avenue, West Wickham, Kent.

510—New Model Railway Club—Mr. G. C. Flowers, 21, Boxted Close, Buckhurst Hill, Essex.

511—Cowley—Mr. F. Copse, 51, White Road, Cowley, Oxford.



K. L. Holgate is secretary of the Rydal School Branch, No. 504, President, Rev. H. F. Mathews, Chairman, Mr. M. P. Thomas. This fine Branch was incorporated with the H.R.C. in July 1947. A good start was made with an excellent layout. This has since been extended and equipped with signals, and increasingly interesting running has been enjoyed by members, while attractive displays have been given on various occasions.

CLUB NOTES

Hornsea M.C.—The Summer Session ended with a variety of entertainments; Junior members enjoyed good times with the Club's Hornby Railway. For the Autumn Session three meetings weekly have been arranged; the final meetings of each month will be devoted to entertainments. All meetings have been arranged by the members concerned. Cricket has continued popular with members, who enjoy weekly games. Club roll: 47. *Secretary:* D. Kitching, 25, Clifford Street, Hornsea.

Huntingdon M.C.—Exceptionally interesting meetings have marked the progress of the Club in recent months. On one occasion express locomotive drivers from New England, Peterborough, described footplate experiences between King's Cross and York. Another was devoted to photography, and a Photographic Section has now been formed. Mr. Deaves, Leader, has given Talks on "*Model-Building*," and a film strip Lecture on "*British Spiders*" has been given. Model-building and Visits have completed a very fine programme. Club roll: 50. *Secretary:* F. Saddington, 9, Avenue Road, Huntingdon.

Cuddington Croft M.C.—More Model-building Contests are being arranged, and the number of models entered by members is increasing. An ingenious model clock was one of the outstanding prize-winning entries. More members are wanted, and any boy living in the neighbourhood who is interested in model-building will be welcome at Club meetings. Club roll: 10. *Secretary:* R. V. J. Chadder, St. Davids, 16, Sandy Lane, Cheam, Surrey.

CANADA

Kimount M.C.—This newly affiliated Club is making rapid progress. Many large models are built at meetings by members, and these are arousing interest and winning prizes at Hobby Shows and Exhibitions. At one of these Mr. B. I. Kershaw, Leader, won a Blue Ribbon for a fine Gantry Crane. During the summer model-building sessions were held out of doors. *Secretary:* R. Blanchard, 678, Homer Street, Vancouver, B.C.

BRANCH NEWS

St. Georges (Amberley)—The Branch has been carefully cleaned and overhauled, and Track Laying is now in progress under the direction of the Secretary and J. D. S. Hay. Electric light is being installed and a Library is to be built up. *Secretary:* I. B. Crowe, St. Georges School, Amberley, Glos.

Rydal School (Colwyn Bay)—A terminal station has been built, and special preparations were made for an Exhibition in June. Many new Signals have been erected. *Secretary:* K. L. Holgate, Crusaders, Rydal School, Colwyn Bay, N. Wales.

Among the Model-Builders

By "Spanner"

K. J. Magor, Newton Abbot, was one of the prize-winners in a recent "M.M." Contest, and is an enthusiastic model-builder.

"Queen Elizabeth" Built by a Meccano Club Leader

Many fine models of the great Cunard-White Star liner *"Queen Elizabeth"* have been built in Meccano, but I was interested to learn of one that has been used for aiding various charities. This model, illustrated on the next page, was built by Mr. A. T. Nicholson, Portsmouth, who is Leader of the Waterlooville and Cowplain

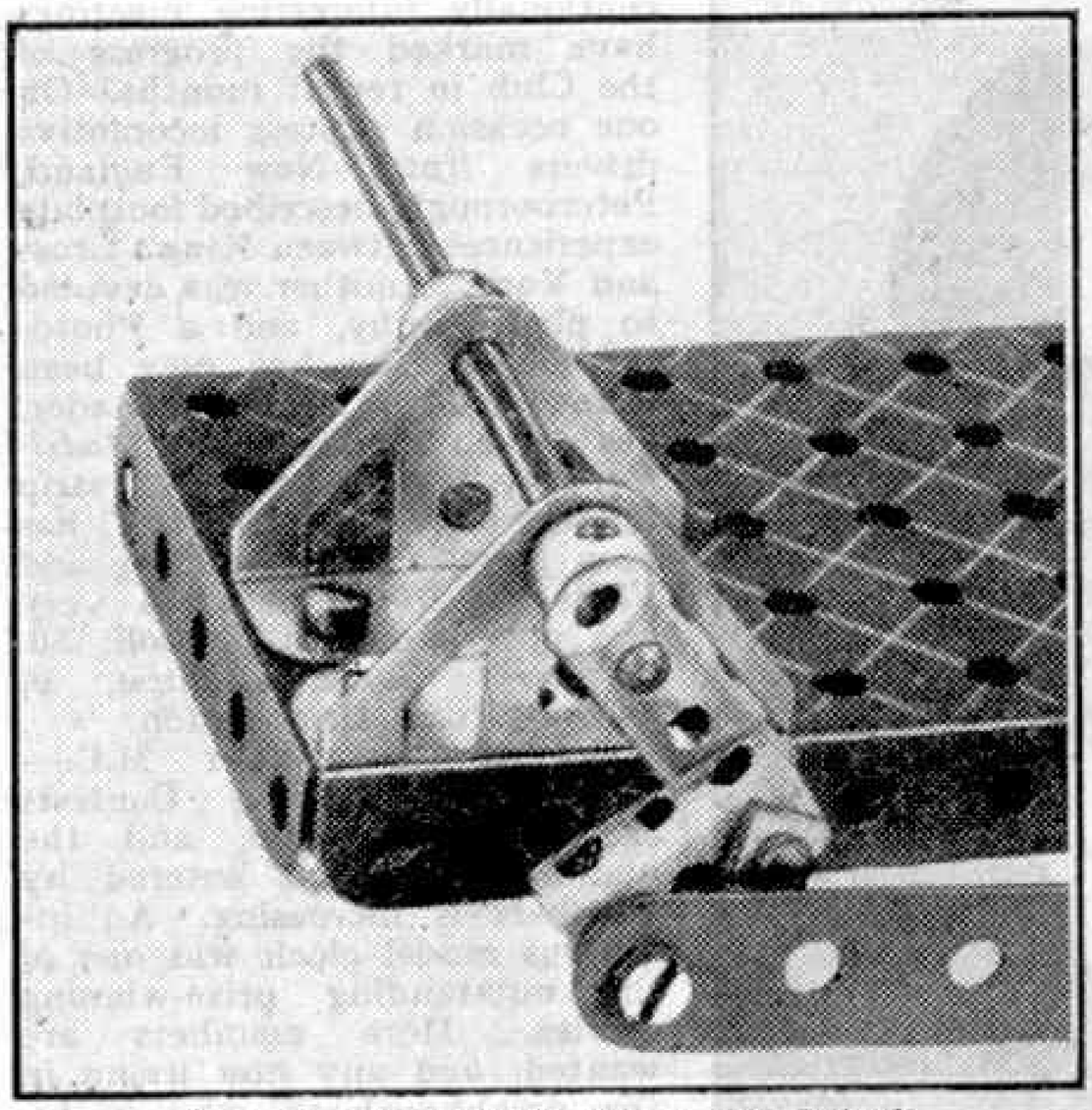


Fig. 1. A variable-throw crankshaft.

Meccano Club. Mr. Nicholson tells me that it took him 18 months to build the model, and as it is 6 ft. in length one can imagine the amount of detail that is incorporated in it. Between the funnels, and on the top deck, is a swimming pool, and the interior of the model is electrically lighted.

The model has been exhibited in aid of various charities, and on one occasion raised £15. I congratulate Mr. Nicholson on his workmanship.

A Variable Throw Crankshaft

Some time ago a reader sent me details of a simple crankshaft constructed so that its stroke can be varied at will within limits. I illustrate this device in Fig. 1. It consists of two Couplings arranged as follows. The end of one Coupling is firmly fixed to the crankshaft, and its end is bolted securely to another Coupling by means of a 1" Screwed Rod. The free end of the second Coupling is pivotally attached to the connecting rod. The length of stroke is varied simply by altering the positions of the two Couplings relative to each other.

A Push-Button Clutch

Fig. 2 shows an ingenious push-button clutch designed by Mr. M. A. Corley, Hull. In this mechanism the drive is transmitted from the input shaft to the output shaft only when a push-button is depressed.

The device is built-up on a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plate, which is fitted at each end with a $1\frac{1}{2}''$ Flat Girder. The input shaft 1 carries a Socket Coupling 2, fitted at one end with half of a Dog Clutch. The other end of the Socket Coupling is passed over a Collar fixed on the Rod 1, which is held in position by a second Collar.

The output shaft 3 carries the other half of the Dog Clutch, and is held in position by a Collar. The two parts of the Dog Clutch normally are held in the disengaged position by a Compression Spring on a Rod 5. The Spring is placed between a Collar 6 and a second Collar that is free on the Rod. The Collar 6 is fitted with a Threaded Pin that engages the groove of the Socket Coupling, and the Rod 5 is prevented from turning by a 1" Rod fixed in a Coupling 7.

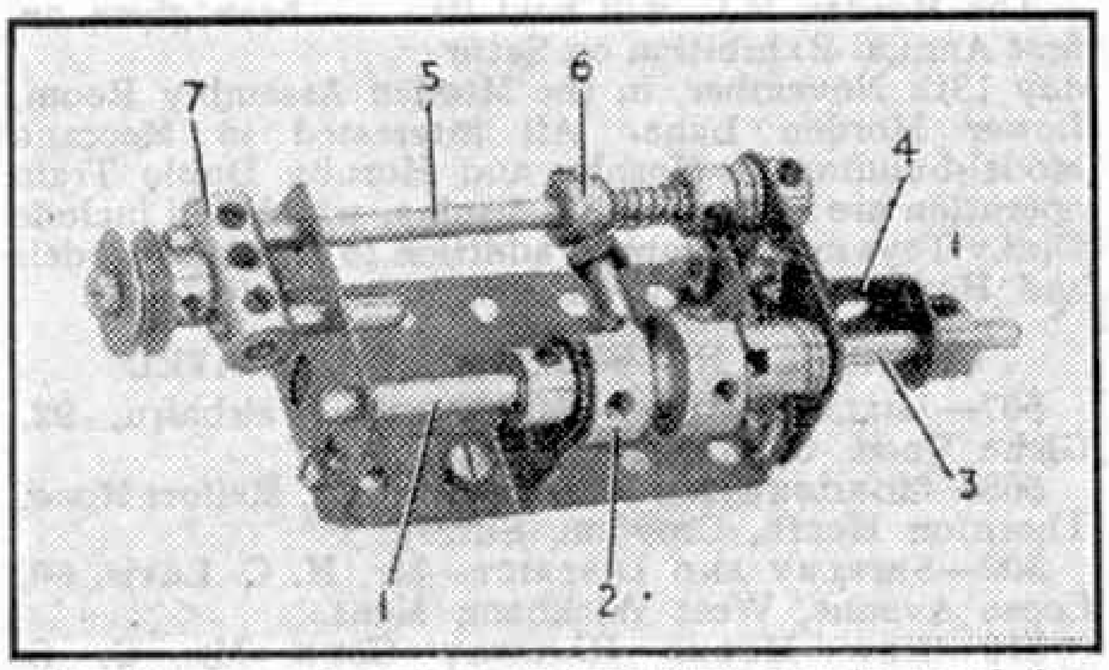


Fig. 2. A push-button clutch that can be used for coupling or de-coupling the input and output shafts of a driving mechanism.

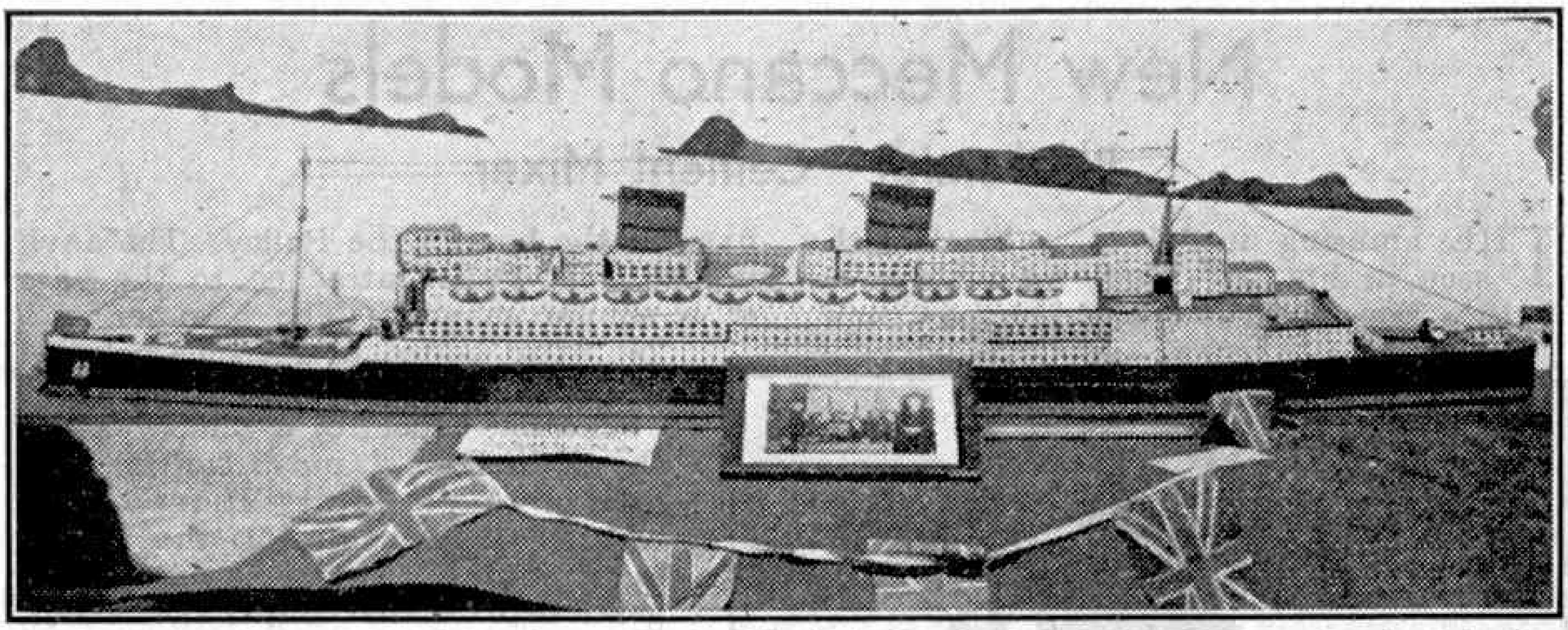


Fig. 3. An interesting model of the "Queen Elizabeth" built by Mr. A. T. Nicholson, Portsmouth, who is Leader of the Waterlooville and Cowplain Meccano Club. The model is 6 ft. in length and is electrically lighted.

How to Use Meccano Parts

Boiler (Part No. 162)

The Meccano Boiler can be used in many kinds of models such as locomotives, stationary engines, and other models of a similar type. It measures $4\frac{3}{4}'' \times 2''$, and is fitted at each end with a movable cap or Boiler End (No. 162a). With one Boiler End removed it can be incorporated in a model traction engine as a boiler, as shown in Fig. 5, or with both ends closed it will serve as a horizontal boiler as in Fig. 4. For constructing boilers or cylinders of large diameter two or more Boilers may be opened out.

Sleeve Piece (Part No. 163) Chimney Adaptor (Part No. 164)

The Sleeve Piece is intended specially for use in the construction of cylinders and chimneys. To form a complete cylinder two $\frac{3}{4}''$ Flanged Wheels are pushed over its ends. The Sleeve Piece can be held in position by bolts inserted in the holes punched round its centre.

When used as a chimney the Sleeve Piece can be fixed to a model by a $\frac{3}{4}''$ Flanged Wheel clamped over one end or by a Chimney Adaptor. In building up longer chimneys, two Sleeve Pieces can be connected together by pushing them over opposite ends of a Chimney Adaptor, but a more rigid and efficient method is that adopted in the chimney shown in Fig. 5. This consists of three Sleeve Pieces placed end to end, with the centre Sleeve Piece overlapping each of the other two by $\frac{3}{8}''$. A $3\frac{1}{2}''$ Rod passed lengthwise through the centre of the three Sleeve Pieces carries at one end a $\frac{3}{4}''$ Flanged Wheel. The Sleeve Pieces are held in place by bolts passed through them and inserted in the holes of Collars carried on the $3\frac{1}{2}''$ Rod.

Fig. 6 shows the Chimney Adaptor used in a syphon lubricator.

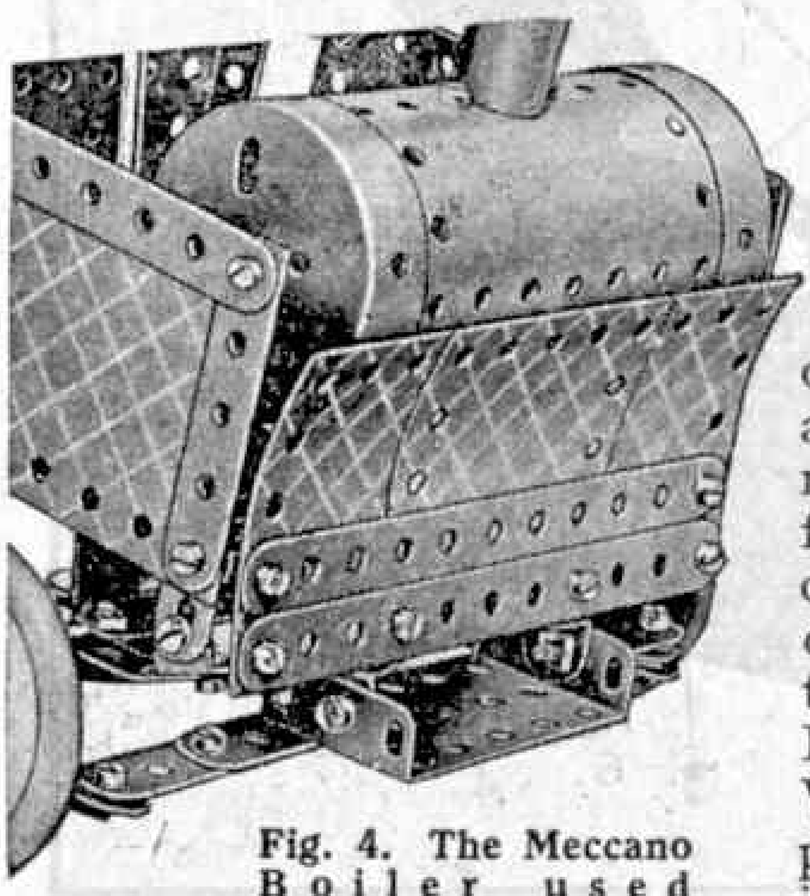


Fig. 4. The Meccano Boiler used horizontally in a steam Wagon.

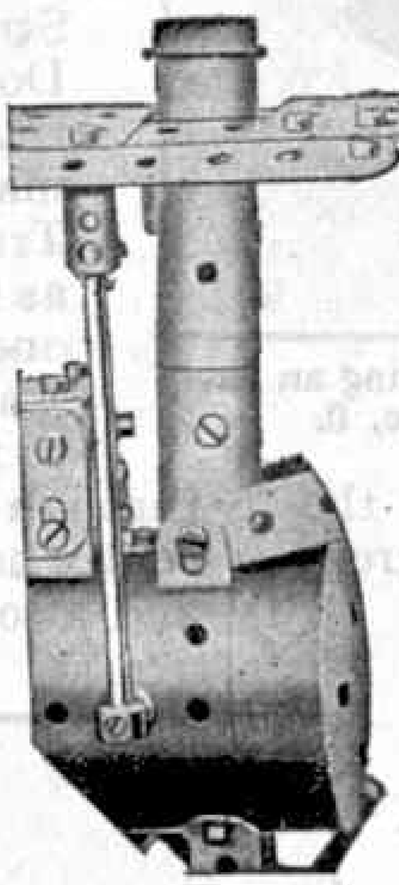
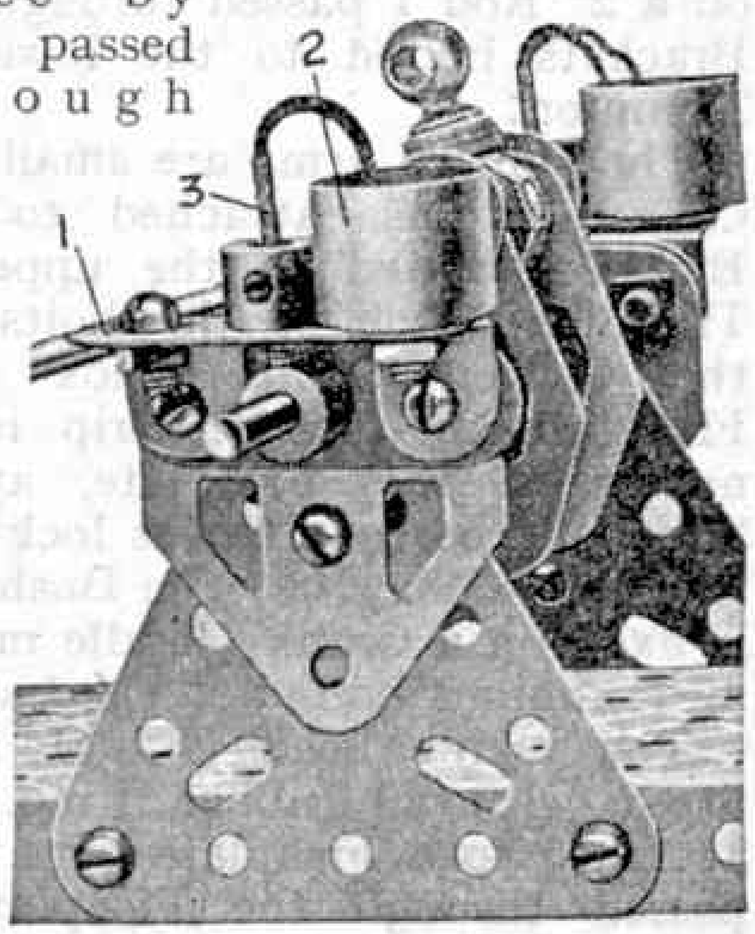


Fig. 5. An example of the uses of a Meccano Boiler, Sleeve Piece and Chimney Adaptor in a Traction Engine.

Fig. 6. A novel use for the Meccano Chimney Adaptor.



New Meccano Models

Blacksmith—Cement Mixer

THE amusing model of a blacksmith seen in Fig. 1 is built from a No. 0 Outfit. The model is operated by a Crank Handle, and when set in motion the blacksmith strikes the anvil with great vigour.

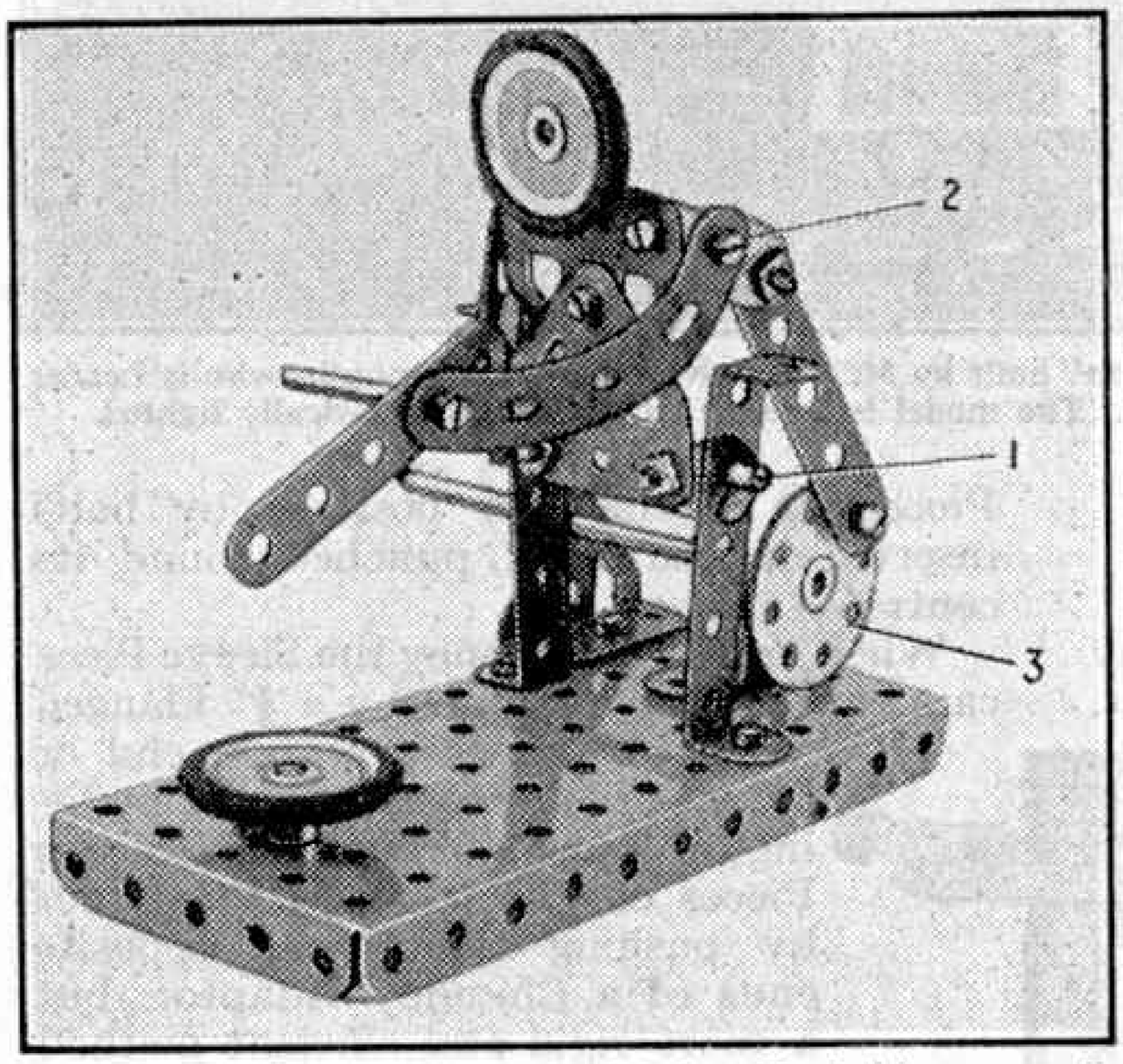


Fig. 1. This working model of a blacksmith striking an anvil can be built from the parts in Outfit No. 0.

The base of the model is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, and two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips representing the smith's legs are bolted to the Plate. The man's body consists of two Flat Trunnions bolted together and overlapped two holes, and it is pivoted on a 2" Rod 1 passed through Angle Brackets bolted to the lower Flat Trunnion.

The smith's arms are small radius Curved Strips, attached to Angle Brackets bolted to the upper Flat Trunnion. One of the bolts fixing the Curved Strips holds also a Fishplate 2. A $2\frac{1}{2}''$ Strip is lock-nutted to this Fishplate, and the lower end of the Strip is lock-nutted to a Bush Wheel 3. The Bush Wheel is fixed on a Crank Handle mounted in Trunnions bolted to the base.

The man's head is a 1" Pulley fitted with a Rubber Ring. It is attached to a Fishplate by a $\frac{3}{8}''$ Bolt passed through the Fishplate and fixed in the boss of the Pulley. The anvil is also a 1" Pulley attached to the base in a similar manner. The hammer is a $2\frac{1}{2}''$ Strip bolted in the end holes of the small radius Curved Strips.

The fine model of a cement mixer shown in Figs. 2 and 3 can be built from a No. 4 Outfit. It reproduces all the movements of the actual machine and includes an interesting gearless drive that allows the cement drum to be tilted while the Motor is running.

The chassis of the model is built first by bolting a $12\frac{1}{2}''$ Strip to each of the longer flanges of a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. Two further $12\frac{1}{2}''$ Strips are fixed to the edges of the Plate, and the outer ends of the Strips are connected by a $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 1.

A support for the mixing drum is made by bolting two $2\frac{1}{2}''$ Strips to Trunnions fixed to the Flanged Plate as shown. A $\frac{3}{8}''$ Bolt is passed through one of the lugs of a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 2, and a nut screwed on to the Bolt. The shank is then passed through one of the vertical $2\frac{1}{2}''$ Strips and the centre hole of a small radius Curved Strip 3, and a second nut is screwed firmly against

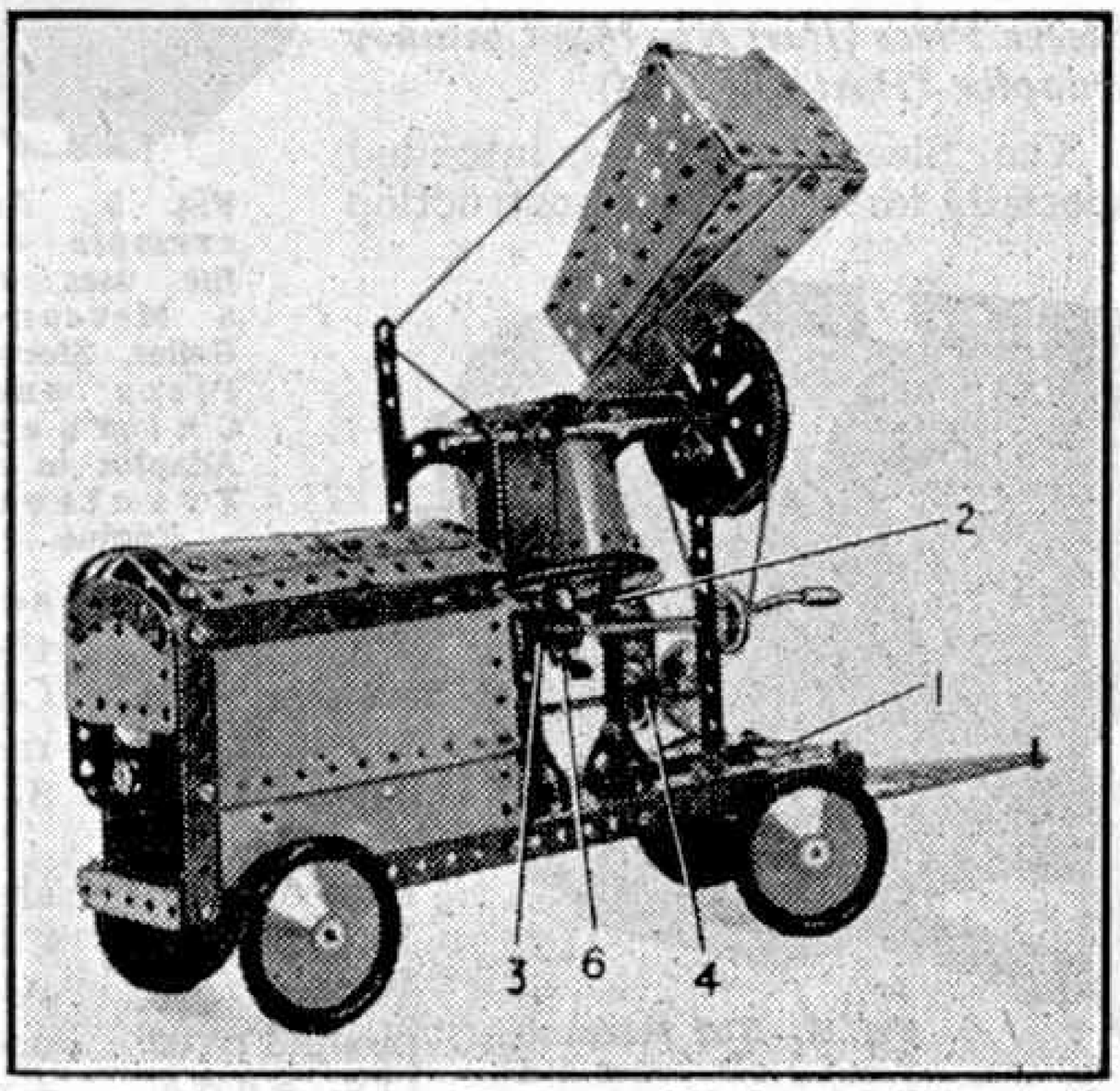


Fig. 2. A realistic model of a mobile Cement Mixer built from Outfit No. 4.

the first. A $\frac{3}{8}$" Bolt is fixed tightly to the opposite lug of the Double Angle Strip, and passed through the second vertical $2\frac{1}{2}$" Strip. A 1" Pulley is then locked on the shank of the Bolt, and connected to a second 1" Pulley 4 by a Driving Band. The Pulley 4 is fixed on a 4" Rod mounted in the $2\frac{1}{2}$" Strips. This Rod carries at its outer end a Bush Wheel fitted with a $\frac{3}{8}$" Bolt, and is used for tilting the mixing drum for unloading.

The mixing drum is made by bolting two $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strips at right angles to each other across a 3" Pulley 5. Two $4\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates are curved and fixed to the Double Angle Strips. This Pulley is fixed on a $1\frac{1}{2}"$ Rod, which is passed through the Double Angle Strip 2 and through a reversed angle bracket 6 made by bolting together two Angle Brackets. The $1\frac{1}{2}"$ Rod is held in position by a Spring Clip.

The supports for the loading hopper are $5\frac{1}{2}"$ Strips attached to Angle Brackets fixed to the chassis and connected at the top by small radius Curved Strips. The sides of the hopper are Flanged Sector Plates, and these are bolted to $5\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plates arranged as shown. The back of the hopper is a $2\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate attached by Angle Brackets.

The hopper is pivoted on a compound rod made by a 4" and a 2" Rod joined by a Rod and Strip Connector. This rod is passed through a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip bolted to the hopper, and is fitted with a 3" Pulley. The 3" Pulley is connected by a Driving Band to a 1" Pulley fixed on a Crank Handle that is mounted in one of the hopper supports and in the small radius Curved Strip 3. Two short lengths of Cord are tied to the compound rod, and passed through the end holes of $2\frac{1}{2}"$ Strips fixed to two of the hopper supports. The Cords are then tied to the rear of the hopper.

The drum is rotated by a *Magic* Motor bolted to the $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate. The drive from the Motor shaft is taken to a 1" Pulley on a compound rod made by joining two $3\frac{1}{2}"$ Rods by a Rod Connector. This rod is mounted in a $2\frac{1}{2}"$ Strip 7 and in a Semi-Circular Plate bolted to one of the Motor side-plates. The rod carries at its inner end a 1" Pulley 8 fitted with a Rubber Ring, arranged so that it presses against the rim of the mixing drum.

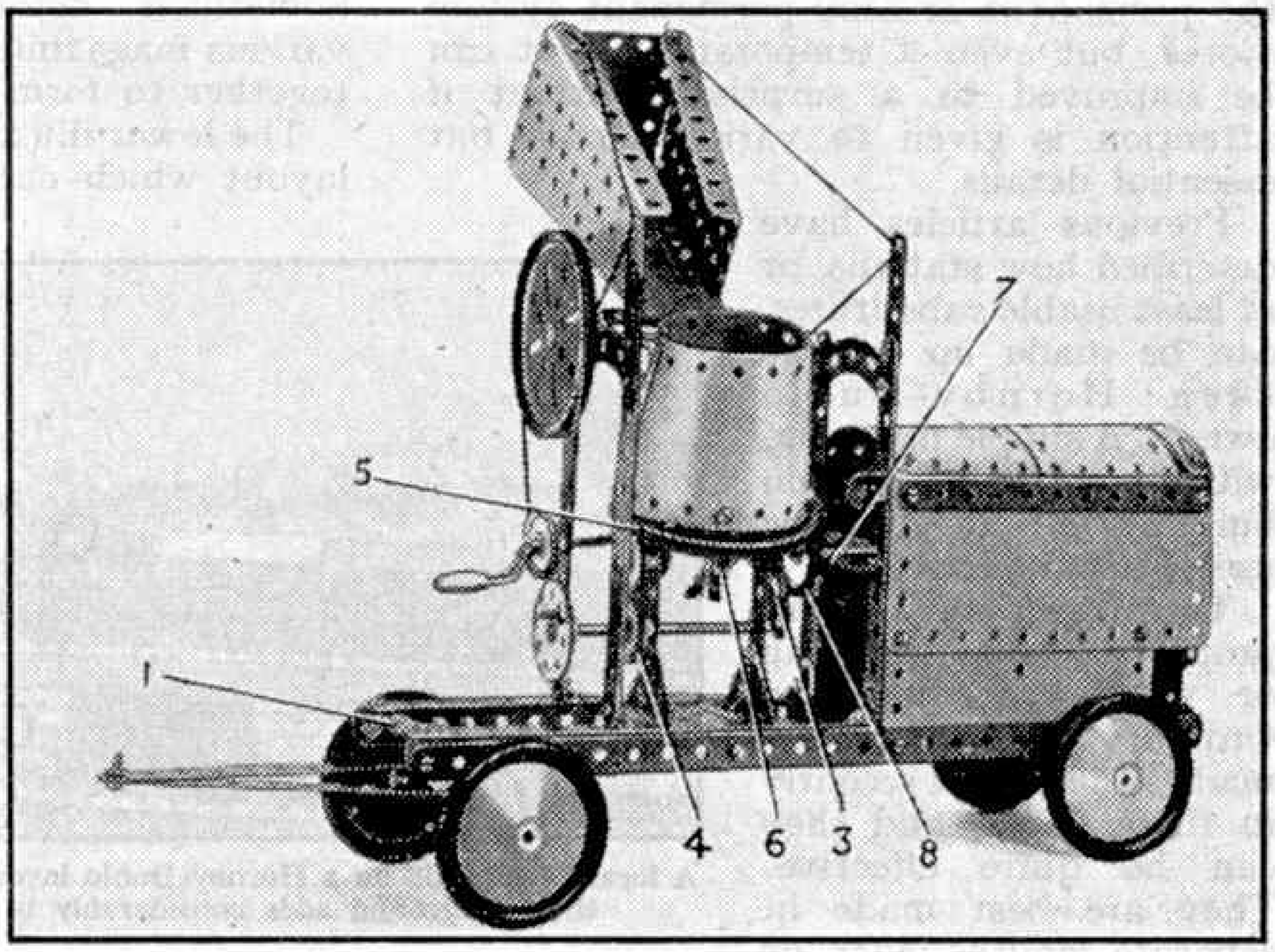


Fig. 3. Another view of the Cement Mixer.

The sides of the engine cover are made from the separated halves of a Hinged Flat Plate and $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates. The top is formed by two $1\frac{11}{16}"$ radius Curved Plates and two $2\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plates attached to Obtuse Angle Brackets fixed to the side.

PRIZES FOR SIMPLE MODELS

In this new contest owners of even the smallest Meccano Outfits can compete on level terms with the fortunate possessors of the larger sets, and we hope that every Meccano boy that reads this announcement will decide to send in an entry. Prizes will be awarded to model-builders who succeed in constructing the most ingenious and realistic models from the smallest number of parts. Competitors may choose any subject they like for their models, and the more unusual and interesting these are the better their chances of winning prizes.

When the model is completed the competitor should get it photographed or make a sketch of it. He should then write his age, name and address on the back of the picture and send it to "Simplicity Model-Building Contest, Meccano Ltd., Binns Road, Liverpool 13." *The actual model must not be sent.*

The competition will be divided into two Sections. A, for readers of all ages living in the British Isles; B, for readers of all ages living Overseas. The prizes to be awarded in each section are: First, Cheque for £2/2/–; Second, Cheque for £1/1/–; Third, P.O. for 10/6. There will be also Consolation Awards and Certificates of Merit.

The closing date for Section A is 30th November, and for Section B 31st January 1949.

Along the Line in Hornby-Dublo

The general effect of any miniature railway system is sure to be disappointing unless attention is paid to the lineside and surroundings of the layout. This is where the permanent or semi-permanent system scores, but even a temporary layout can be improved to a surprising extent if attention is given to various small but essential details.

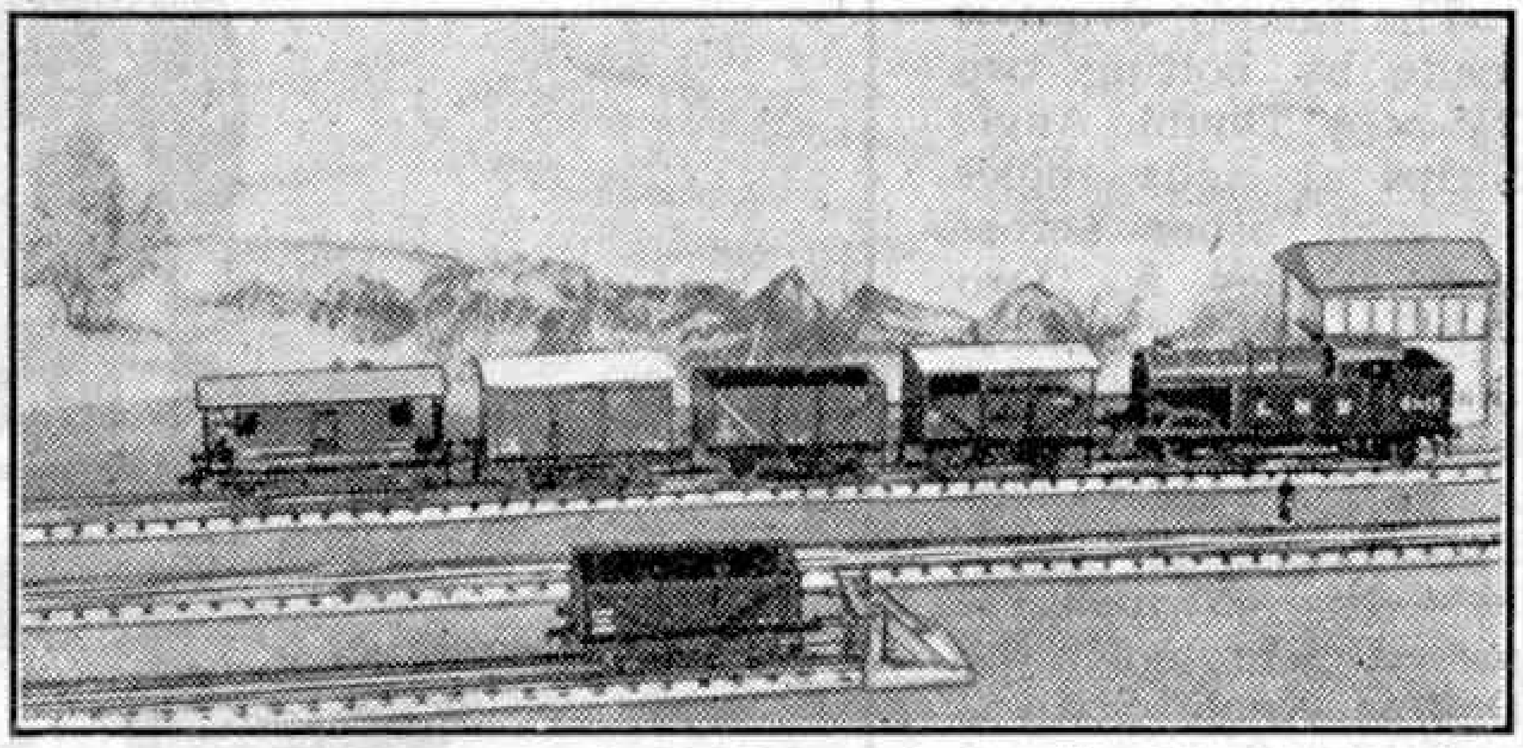
Previous articles have described how stations, or at least usable substitutes, can be made up by the keen Hornby-Dublo owner. A simple platform, with perhaps just a plain building on it, can be useful and effective.

To enclose the railway property, some fencing or walls are necessary. Ordinary walls are readily made as described recently in these pages, and they can be quite effective. They are best made in separate lengths, each on a base so that it will stand up without having to be fastened down. These sections can be moved if this becomes necessary in the course of alterations or developments.

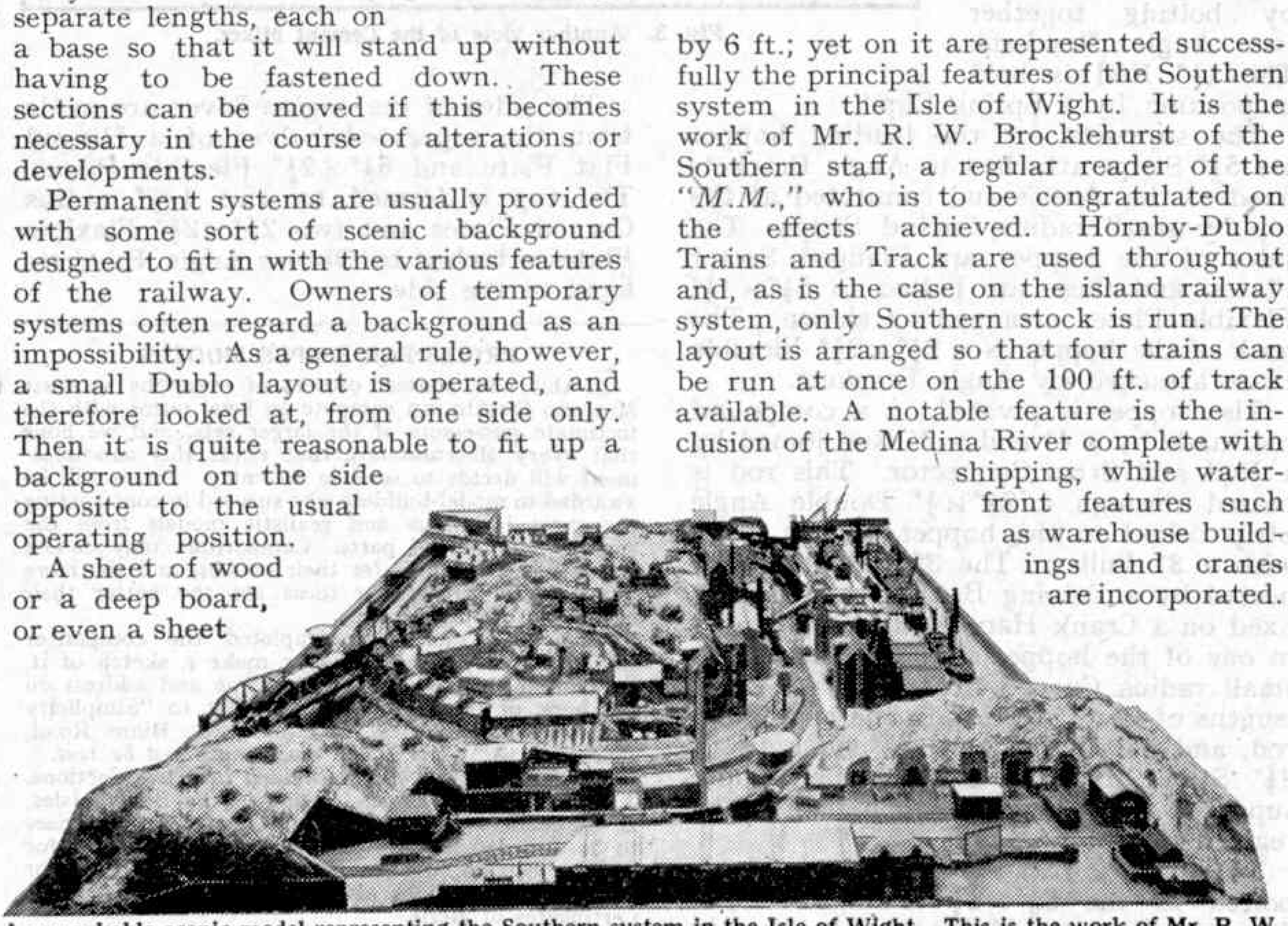
Permanent systems are usually provided with some sort of scenic background designed to fit in with the various features of the railway. Owners of temporary systems often regard a background as an impossibility. As a general rule, however, a small Dublo layout is operated, and therefore looked at, from one side only. Then it is quite reasonable to fit up a background on the side opposite to the usual operating position.

A sheet of wood or a deep board, or even a sheet or two of thick cardboard, can be used as the basis of such a background, the surface on which the scenery is to appear being painted or covered with paper. Sometimes coloured illustrations from various magazines and so on can be pieced together to form a complete scene.

The lower illustration shows an excellent layout which occupies a space only 9 ft. by 6 ft.; yet on it are represented successfully the principal features of the Southern system in the Isle of Wight. It is the work of Mr. R. W. Brocklehurst of the Southern staff, a regular reader of the "*M.M.*," who is to be congratulated on the effects achieved. Hornby-Dublo Trains and Track are used throughout and, as is the case on the island railway system, only Southern stock is run. The layout is arranged so that four trains can be run at once on the 100 ft. of track available. A notable feature is the inclusion of the Medina River complete with shipping, while waterfront features such as warehouse buildings and cranes are incorporated.



A local goods train on a Hornby-Dublo layout. In spite of its simple nature the background adds considerably to the realism of the scene.

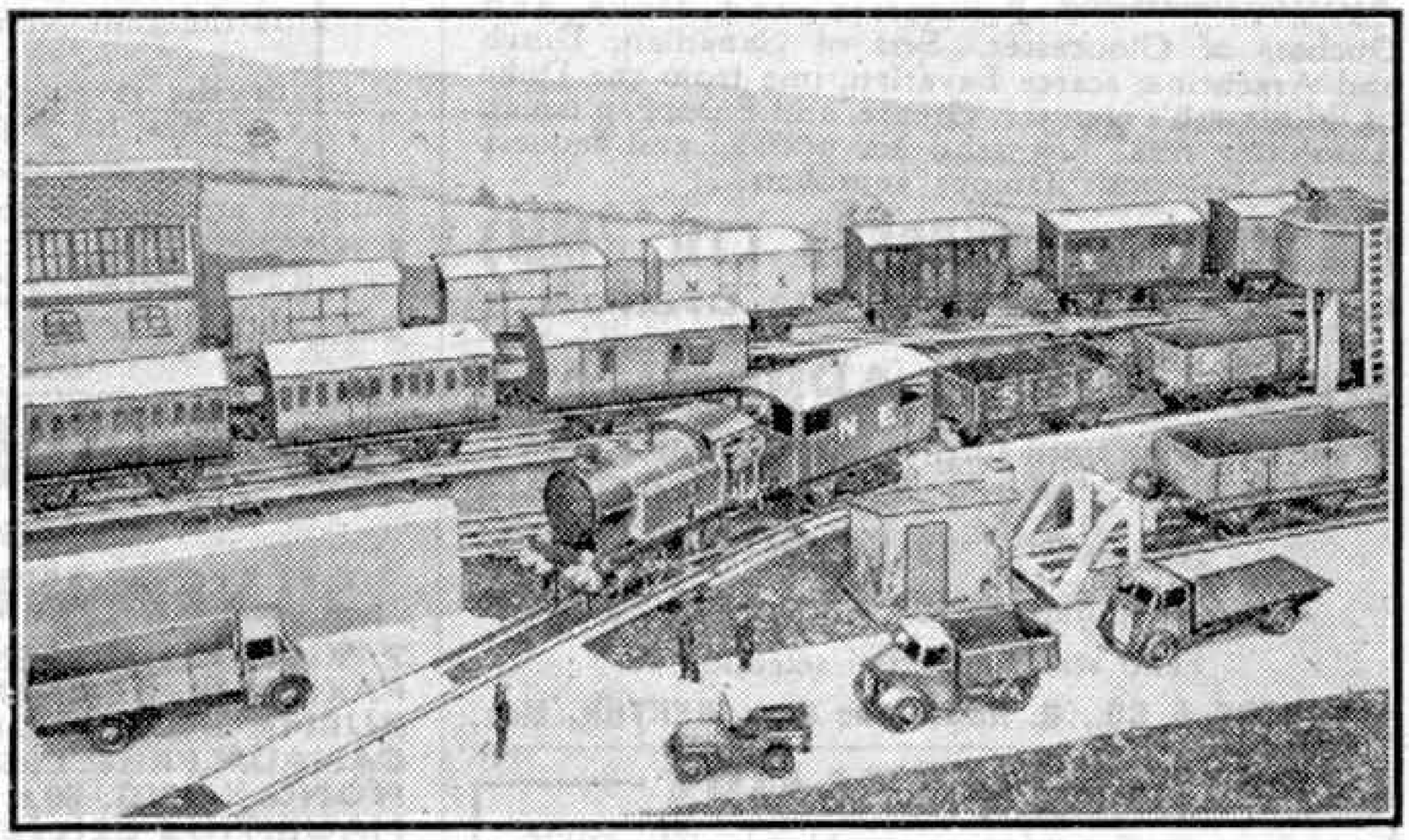


A remarkable scenic model representing the Southern system in the Isle of Wight. This is the work of Mr. R. W. Brocklehurst and took over four years to complete. Hornby-Dublo equipment is used and the model includes 100 ft. of Hornby-Dublo Track and four Locomotives.

Cleaning and Oiling Hornby Trains

HORNBY Railway equipment, just like the real thing, requires careful periodical attention if it is to be kept in sound working order. Many readers are in the habit of looking over their engines, rails and rolling stock from time to time, but others, we are afraid, do not follow this practice. All should look over their equipment just now with the intensive train running season before them. This is not a big job, and if it is tackled in the right way it is really quite interesting. We can be sure that we shall be repaid for our trouble by the running results obtained when our working programme begins.

It is a good plan to begin our maintenance operations with the rails themselves. Each piece of track should be examined, and given a careful wipe over with a clean rag. The rail heads may be slightly dirty from the last spell of running, and they should be cleaned up before anything else is done. We should make sure that the rail ends are in good condition, and that the rail connecting pins are tight. Any of the hollow rail ends that have become out of shape can usually be corrected with a small pair of pliers. Finally, the correctness of gauge of each length of track can be tested by means of the handle of the engine winding key. This should be slid along between the rails when any tight places will be noticed at once. A very slight slackness in the gauge is no disadvantage, but a tight place can be a nuisance, and should be put right.



A busy Hornby Railway scene. Motor traffic waits while the shunting goods train passes over the road crossing.

Having finished with the track, the wheels of the engine and of all rolling stock should be examined to see that they run truly. Probably there will not be much wrong with them in this respect, but the treads, and possibly the axles and bearings, may need cleaning. In most cases a dry wipe round the treads will be all that is necessary. Sometimes, however, through long periods of running, together with over-oiling which leads to dirty track, the wheels may have picked up quite a deposit of the greasy "mud" that tends to accumulate on the rails in such circumstances. This may require the careful use of a penknife blade to help to remove it, but in most cases such a drastic measure will not be required. It is important, however, to clean all wheels thoroughly, as the retarding effect of any dirt on the treads is considerable.

There may be a certain amount of dirt, such as fluff, etc., on and around the axles themselves. This can usually be removed by wiping or brushing, and as a rule it is easier to do this job if the wheels and axles of rolling stock are removed from between the frames. Engine wheels and axles are not removable, so they must be dealt with as they are. This is not difficult to manage, however, and any "whiskery" deposit that may have accumulated behind the wheels can usually be got rid of with a piece of wire, a penknife blade or even a matchstick.

In order to keep the inside of the locomotive clean and free, treatment of the various spindles, bearings and gears with a small quantity of petrol is of advantage. A small "mop" paint brush kept specially for the purpose forms quite a useful means of applying the petrol. Needless to say, this job should preferably be done in the open, and in any case well away from any fire or flame.

After these cleaning operations, fresh lubrication will be necessary. Any light oil of good quality, such as sewing machine oil, will give good results. It is best applied to all the working parts in small quantities by means of a wire dipper or sharpened matchstick. An ordinary oil can will deliver far too much oil, and this will inevitably find its way on to the wheel treads and track that we have taken so much trouble to clean. An oily track will cause slipping of the engine driving wheels, and poor running will result.

Having dealt with the working parts, it is well at this stage to give the engine and rolling stock a general look over. Couplings may need adjustment in order to operate properly, and care should be taken to see that they are not bent up or down excessively. Unless the automatic couplings fitted to all Hornby rolling stock are fair with one another, they will not engage as intended. Coupling loops should be free, and any that have become bent slightly can be corrected with a small pair of pliers.

The touching up of paint that may have been chipped on buffer heads and elsewhere is another little job that can be carried out by those who wish to preserve the appearance of their trains. The "outsides" of engines and rolling stock bodies should be dusted and cleaned, and finally given a polish up with a soft cloth. A good well-cleaned appearance that will last quite a long time can be obtained by the sparing use of a good quality wax polish. Engine boilers, cab and tender sides and coach bodywork look particularly well if cleaned up in this way.

With regular and careful attention, clockwork engines and trains can have a surprising length of life. Hornby locomotives have made a special name for themselves in this respect, and as an instance of what can be achieved, we recently received details of a veteran Hornby locomotive owned by Mr. A. J. W. Pratt of New Zealand. This is at least 25 years old, yet recent examination showed it to be still in good mechanical condition. The fact that it is still "going strong" is a tribute not only to the quality of the engine but also to the careful handling it must have received. We wish that all Hornby locomotives could be treated in a similar way!

BARGAIN DISCOUNT APPROVALS

The ORIGINAL "Bargain Discount Approvals" and the REAL Collector's Service. Competitive Prices and Generous Discount. We supply sheets of modern and new issues Br. Colonials or B.C. and Foreign mixed. (G. VI mint only if desired—no "single country" lots available). A book of SETS is always included. PLEASE NOTE THAT WE SEND ONLY WHEN YOU ASK. YOU will NOT be pestered. No rubbish included. Why not send a post-card to-day? We pay postage one way.

THE BIRKDALE STAMP CO. (P.T.S.)

POSTAL BUSINESS ONLY **104, LIVERPOOL ROAD, SOUTHPORT, Lancs.**

ROYAL FAMILY

COMMEMORATION PACKET FREE

The historical stamp portraying the Royal Family is included in this collection of different stamps covering 100 years of the House of Windsor. Old Victorian (1841), Duke of Windsor, King George V, Present King and Queen, Royal Princesses and Duke and Duchess of Gloucester. Sets of Canadian, Dutch and Argentine, scarce Bavarian, one from the Duke of Edinburgh's country, Greece, and European issues. Absolutely free. Just send 3d. postage and request our famous approvals.

LISBURN & TOWNSEND LTD. (MM)

1a, BRONTE ST., LONDON RD., LIVERPOOL 3

HALF PRICE APPROVALS

We are offering until further notice special books of GREAT BRITAIN and BRITISH COLONIALS

at 50% DISCOUNT

Minimum purchase, 10/- worth for 5/- net.

Send stamp for trial selection.

SAUNDERS & CO., 8, Hawthorne Ave., KENTON, Mdx.

FREE GIFT OF STAMPS

to every applicant for approval books. The GIFT contains 30 British Colonials including 8 K.G. VI mint—no Great Britain. Good discount is given and a list of 98 Gifts is sent. These can be chosen by you and vary in value according to the money sent for purchases. They include K.G. VI Mint Silver Jubilees. ALL the Coronation Sets and Foreign. 3d. postage please.

C. A. RUSH, 38, Queen's Avenue, Whetstone, London N.20

"SPECIAL OFFER" THIS MONTH FREE!

This very beautiful stamp from the **Br. Solomon Islands** (and 5 others) sent **FREE** to all sending 2½d. for my fine new **ILLUSTRATED PRICE LIST** which is packed with offers of attractive sets, packets, etc. *Send now.*

Philip J. Dyke (P.T.S), 35, Buckleigh Ave., London S.W.20

MORE STAMP BARGAINS

Here are some more special offers of stamp packets at bargain prices. This is a great opportunity to fill up those spaces in your collection

40 different AUSTRALIA	...	2/6
10 different BR. GUIANA	...	1/3
10 different BURMA ...	...	1/6
20 different CEYLON ...	...	2/-
30 different EIRE ...	...	3/6
10 different KENYA ...	...	1/3
12 different NEW ZEALAND PICTORIALS		1/-

or the seven packets containing 132 stamps for 10/6 including postage.

Supplies are limited so order promptly and ask for a selection of our World-famous Approval Sheets.

ERRINGTON & MARTIN

DEPT. 483, SOUTH HACKNEY, LONDON E.9

Established 1880

Wm. GOODE (RETAIL) LTD.

OFFERS

SILVER WEDDING ISSUE

PAKISTAN INDEPENDENCE ..	..	U. 3/6
PAKISTAN, DEFINITE COMP. to 1 R.		M. 8/9
BURMA INDEPENDENCE ..	..	M. 2/9
CANADA PRINCESS	..	M. 6d.
HONG KONG, 80 c. value ..	..	M. 1/6
MAURITIUS CENTENARY ..	..	M. 3/-

WE SPECIALIZE IN BRITISH COLONIALS. SEND FOR OUR LIST TO-DAY, FREE.

LARGE STOCK OF ALBUMS. OUR NEW LIST IS NOW READY, FREE.

19, CLIFTON ROAD, RUGBY

Telephone: 3100

N.Z. VICTORY STAMPS

A fine unused set of New Zealand Victory stamps showing Lake Mathieson, King George VI. and Parliament, and St. Paul's Cathedral with the Union Jack in the background, a quotation from one of Mr. Churchill's great Battle of Britain speeches, and the V sign, designs truly symbolising the sources of Peace, Strength, and Victory, sent free to all applicants for approvals enclosing 2½d. postage.

R. D. HARRISON, ROYDON, WARE

INDIAN GANDHI and HYDERABAD VICTORY FREE

Two countries in the news. The above **TWO ATTRACTIVE COMMEMORATIVES** will be sent **FREE** to all collectors asking to see my **BARGAIN** discount approvals and sending 3d. (abroad 6d.) for postage and lists that **WILL** surprise you. Without approvals price 8d.

G. L. WRIGHT (originally H. C. Watkins, Barnet), Dept. HG, Palace St., Canterbury, Kent

For other Stamp Advertisements see also pages 362 and xi.

Stamp Collecting

Attractive Empire Issues

By F. Riley, B.Sc.

THE appearance of a new country in the stamp world is an event of special interest, even when the country is only four square miles in extent and numbers about 1,400 inhabitants, as is the case with the Tokelau Islands, referred to in "*Stamp Gossip*" last month. These islands are in the Pacific Ocean, north of Samoa, and they have been under the control of New Zealand since 1926. They are really a group of atolls, circlets of coral enclosing shallow lagoons. There are three of these atolls in the Tokelau Islands group on which Post Offices have been established, and for each of the three there is a separate stamp design. The one illustrated last month was Atafu, and on this page I reproduce the stamp designs associated with the remaining two, Fakaofo and Nukunono. In each design there is a map of the atoll concerned, with a typical scene, and the Atafu stamp design includes also a general map of the group.

Coral islands are built up of the skeletons of the coral polyp, a small marine animal that flourishes in many parts of the world. In the Pacific Ocean there are countless islands of this kind. As a rule they are low, which is easily understood, as the coral polyp can only live in the sea; and it seems surprising that atolls such as those of the Tokelau Islands, rising in the ocean far from other lands, should have acquired a soil in which trees and plants can grow. Sand, vegetable matter and other debris washed up by the sea began this process, and small land crabs have helped by burrowing industriously in the refuse. Seeds have been brought by birds or washed up from the sea, and eventually these Pacific coral islands have become the home of the coconut palm and other trees. The people of the Tokelau Islands now grow taro, the banana and bread fruit. There are also plenty of fish in the sea for them, and they are among the strongest swimmers of the Pacific Ocean.

Another attractive recent Empire issue is that from the Gold Coast, which is now represented by a long pictorial set with a wide variety of designs. Before the war there had been only three pictorial stamps from this colony, and the designs of all of these represented Christiansborg Castle, at Accra, the capital of the colony. Earlier stamps had all been portrait issues, and the Silver Jubilee and Coronation stamps were the usual colonial ones, with designs that had no special connection with the Gold Coast. This applied also to the Victory set of 1946, but now we have a Gold Coast set, with values from ½d. to 10/–, all of different designs, that was rightly described by Mr. F. E. Metcalfe in last month's "*M.M.*" as a fine one. In his article he illustrated the 2d. value, showing the talking drums of West Africa. There drumming is an art; each chief has his own drum call or motto, sounded by a particular beat.

Two stamps of the new set illustrate the cocoa industry. These are the 6d., which shows a cocoa farmer with one of his trees, and the 1/– value, on which the pods are shown being broken open. The cacao tree, from which our cocoa and chocolate come, is an evergreen, and its flowers grow on short stems from the trunk and branches. This gives the tree a curious appearance, as the 6d. value shows. The fruits into which the flowers develop are about the size of a small cucumber, green at first and then turning purplish yellow. They are cut off with a heavy knife and remain on the ground for a day to dry. Then the almond-shaped beans themselves are shelled out and left in piles for several days, when they sweat or ferment and acquire their rich brown colour.

Reference has already been made to the appearance of the earlier Gold Coast pictorial of Christiansborg Castle. This is seen again on the 1d. value of the present issue, and is a reminder that there have been extensive Danish settlements along the Gold Coast. Various Dutch and Danish companies began trading there. Christiansborg Castle and other Danish forts were bought by the British in 1851 and the Dutch forts and settlements in 1871. Since that time the country has been definitely under British rule. It has always had the reputation of being unhealthy, especially for Europeans, but great efforts have been made to improve conditions and these are becoming effective. Education too has been introduced. Most of the schools are managed by churches and missions, subsidised by the Government, and Achimota College has been built and endowed by the Government to provide higher education. Peace has been another benefit that British occupation has brought with it.

Cocoa is the principal product of the colony, and the second is gold. The first gold obtained, that from which the territory derived its name, was gold dust washed from the soil, but to-day gold mining is being developed on a large scale. Manganese is another important product, and the 3d. value shows a mine from which it is obtained.

CHINESE SEA AND AIR FREE

We will send to **you ABSOLUTELY FREE** this very beautiful **CHINA** high value stamp commemorating 50th Anniversary of Chinese Postal Service. It depicts an old Chinese Junk boat under which is date 1896, and a modern Aeroplane over which is date 1946.

This lovely issue will add value and interest to **your** collection, and we will send it to **you Absolutely Free.** Just send 3d. stamps for our postage, ask to see our Windsor Approvals from which there is no obligation to purchase, and ask for **Chinese Sea and Air Free Gift.**

WINDSOR STAMP CO. (DEPT. M),
UCKFIELD, SUSSEX

EXTRA SPECIAL BRITISH COLONIAL VARIETY PACKET FREE

This magnificent packet of specially selected stamps will be sent to you absolutely

free per return of post

Each packet includes Scarce **Jubilee,** large **Coronation,** recent **Victory, Zoological** and latest New Issue Stamps.

Send immediately 2½d. towards postage and request our Famous Bargain Discount Approvals. Personal Service, no rubbish.

Write to-day:

L. E. THOMPSON
2, Western Gardens, London W.5

CEYLON

S.G. Catalogue Numbers — Mint marked * — Post extra

S.G.	Sim.	Price	S.G.	Sim.	Price	S.G.	Sim.	Price
205	96	4d.	385*	188*	6d.	**MALDIVES**		
259*	83*	3d.	385	188	5d.	9	9	5d.
330*	160*	1½d.	390	193	1½d.	14	12	2d.
332*	161*	2d.	391	194	1½d.	**HONG KONG**		
333*	162*	1½d.	392	195	3d.	82	57	10d.
335*	159*	1½d.	393	196	5d.	84	60	10d.
337*	163*	1½d.	398*	201*	2d.	125	82	6d.
357	140	2d.	398	201	3d.	126	83	9d.
360a	145	1½d.	Mint blks. of 4			129	86	1/3
361*	164*	2d.	330	160	4d.	134	92	10d.
362*	165*	2d.	332	161	8d.	135	93	2/-
368	171	2d.	333	162	6d.	138	96	9d.
370	173	1/6	335	159	4d.	139	97	1/-
371	174	2/6	337	163	4d.	147a	107	2/-
375	178	5d.	361	164	8d.	147b	108	6d.
381	184	1/-	362	165	8d.	148	109	1/-
383*	186*	2d.	383	186	8d.	149	110	1/9
383	186	2d.	384	187	1/4	149a	111	1/-
384*	187*	4d.	385	188	2/-	161	120	6d.

Fred Harlow, B.P.A., **133, Bradbourne Vale, Sevenoaks, Kent**

FREE TO ALL COLLECTORS

(Postage 2½d.)

NEW ISSUE FOR NORFOLK ISLAND

G. P. KEEF, Willingdon, Eastbourne

MINT PEACE SETS. Aden 9d., Ascension 1/-, Australia 1/2, Br. Solomon Is. 7d., Burma 1/3, Cayman Is. 9d., Ceylon 8d., Falkland Is. 9d., Falkland Is. Dep. 1/-, Fiji 10d., Gilbert & Ellice Is. 7d., India 2/9, Mauritius 9d., N. Zealand 5/-, N.Z. Dep. (3) 4/9, Nyasaland 6d., Pitcairn Is. 10d., St. Helena 1/-, Seychelles 1/2, Trinidad 9d.

GENERAL OFFERS. ROYAL VISIT ISSUES FOR BASUTOLAND, Bechuanaland, Swaziland, S.A., S.W.A. and S. Rhodesia 10/-; Brunei 1947, 1, 2, 3, 5, 6, 8, 10, 15, 25, 30, 50c. 4/4, $1 2/9; 1945 Duke of Gloucester 1/6; 1946 Mitchell 1/9; Austria Vienna Fair (8) 1/-; Ceylon Constitutional Set 1/2; Mauritius P.O. Cent. Set 2/6.

STAMPED ADDRESSED ENVELOPE REQUIRED FOR ALL SENDINGS (S.A.E.). 10% NEW ISSUE SERVICE. BULLETIN NEW ISSUES, ETC., 1d.

T. H. SMITH (Letts & Co.) **Established 1920**
65, ST. KILDA ROAD, LONDON W.13

STAMP APPROVAL APPLICANTS

Receive 20 Stamps including the following islands, Samoa, Tonga, Pitcairn, Gilbert and Solomon islands.

WITHOUT APPROVALS 9d.

S. H. FLEMING
Newhaven, Glyn Avenue, Colwyn Bay

SPECIAL COUNTRY PACKETS

25 Honduras	4/-	100 Finland	3/6
100 Czechoslovakia	4/6	100 Germany	1/6
200 Belgium	5/-	100 Greece	3/6
100 Bohemia	4/6	100 Italy	1/10
100 China	2/6	100 Paraguay	8/6
50 Colombia	2/6	100 Poland	5/-
100 Denmark	2/6	100 Sweden	2/6

Postage 2½d. extra on all orders, or post free with approval selections.

CAPT. M. CAMPBELL & CO. (Dept. MM)
58, HIGH STREET, WATFORD, HERTS.

5/- post free—1,000 DEALERS' MIXTURE OFF PAPER
Approximate 1,000 (weighed) UNSORTED mixture Foreign and Colonial Stamps. Old and New issues. Fine for swaps. Club sheets, etc. OLD CLIENTS—NEW MIXING. ABROAD postage 1/- extra.
JOS. H. GAZE, 10, Pimlico Road, CLITHEROE, Lancs.

GOOD VALUE IN ILLUSTRATED ALBUMS
The "AERO," 64 pages, 8¼" × 6½" .. Post Free **2/3**
The "LIFEGUARD," 64 pages, 9¾" × 7½", Post Free **2/9**
The "BOUNTY," 132 pages, 9¾" × 7½", Post Free **9/-**
Excellent selections of Br. Colonials sent on approval.
AUSTIN BROS., S.D.A., 294, Malden Rd., CHEAM, Surrey

FREE—STAMPS CATALOGUED 5/-
to applicants for ½d. approvals
COX, 17, STONELEIGH PARK ROAD, EWELL

50 LARGE PICTORIALS **4/-—50** EXTRA GOOD STAMPS **7/6.** APPROVALS ON REQUEST.
H. Jackson, 20, Branch St., South Bank, Middlesbrough

For other Stamp Advertisements see also pages 360 and xi.

Stamp Gossip

and Notes on New Issues

By F. E. Metcalfe

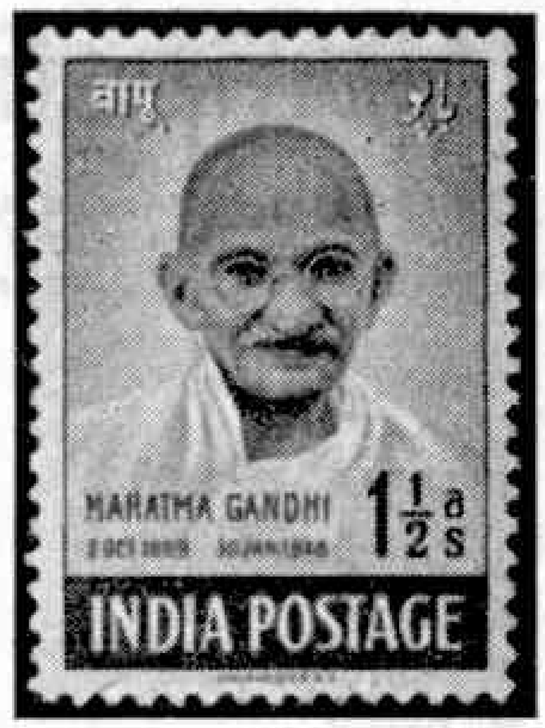
ANY doubt that our postal authorities may have had regarding the substantial sums of money which can be obtained by the emission of special postage stamps must have been dispelled for good by the sales of the £1 "Wedding" stamp, issued earlier in the year. According to reports, over half a million have been sold, and it is safe to say that well over half of these have gone into collector's albums and have never done postal duty. However, as has already been reported, collectors are complaining bitterly about all the high value "Colonial" stamps which are being released, and another batch like these might well kill the goose with its literally golden eggs.

There is news of more sets for all the colonies, to commemorate the 75th anniversary of the Postal Union, but it is also said that the top face value of these sets will be 1/-, and quite enough too.

Speaking of the cash to be earned by special stamps, "*Meekel's Weekly*," an American philatelic newspaper, gives some interesting figures of what Uncle Sam manages to rake off. As readers know, there is a Philatelic Bureau in Washington, which sells stamps to collectors and dealers only. During the past year nearly two and a half million dollars' worth of philatelic fare were sold, and since the Bureau was opened the sales have amounted to more than $30 million. No wonder more and more pretty stamps are being issued. But now American collectors, if they have any breath left after anathematising our Post Office for emitting the £1 "Wedding" stamp, are waxing exceedingly wroth regarding the multitude of stamps due to appear within the next few months. But the Post Office should worry while anything they produce is snapped up so readily!

Getting down to new stamps, many thought that when Burma left the Empire British collectors would cease to collect their stamps. Apparently this is not the case, and the recent "Memorial" set, which was issued in July, is evidently selling as well as it would have done if Burma had never cast itself adrift. The latest set, which is selling at nearly £1, was printed by Messrs. De La Rue. Cheapness cannot account for its popularity. There are 12 values, which range from 3p. to 5r. The design, which is common to the whole set, is attractive enough, but the centering of some of the stamps has caused more than one dealer to tear off what bit of hair he has left, after the trouble he has had recently with other British colonial stamps for the same reason.

Apparently our printers are in too big a hurry and protests to the Crown Agents only elicit the reply that nothing can be done about better centering for the time being. So please don't kick your dealer; he has done his best and cannot be blamed if your set contains at least a proportion of badly centered stamps. American collectors are very annoyed, and we are probably losing dollars through all this bad workmanship, for that is really what it amounts to.



A young collector has shown the writer of these notes a stamp from China of the face value of five thousand dollars, and he seemed to think that he had got a rarity indeed. Alas, that stamp only had an actual value of a copper or so, for Chinese currency has gone completely haywire. A cover was noticed the other day with stamps amounting to about a hundred thousand dollars, and it wasn't a very big one either.

Another collector had seen a wholesale advertisement where "Olympic Games" stamps overprinted for use in Tangier were being offered slightly under face value, and yet another had noticed that our £1 "Wedding" stamps were being offered in New York at several shillings below face. These collectors want to know how this comes about. The explanation is simple. In Tangier one can obtain many more pesetas than 45 to the pound, which is the rate calculated for the exchange of a £1 stamp, so all that the buyer in Spanish Morocco need do is to purchase a number of £1 stamps for 45 pesetas each, pesetas which can be obtained for about 70 to the pound, and then send the stamps to London. The same manœuvre is practised with the dollars really, though it works the other way round. Pounds can be bought in New York for less than three dollars; then the pounds are brought surreptitiously to Great Britain, the stamps are purchased and smuggled into America.

A number of collectors are mystified by stamps coming on letters from Germany that have small horns overprinted thereon. It would appear that after the currency changes had been made in the Western Zone, existing postage stamps were overprinted with the horns and only those so treated were valid for postage. It is said that the Russians refused to accept letters on which these overprinted stamps were stuck. They would, but that embargo was no more effective than other Russian moves.

Our final illustration this month is a stamp taken from the "Gandhi" Memorial set, which was issued on 14th August. It is a rather expensive set, for the fourth and top value has a face value of 10r. and this will prevent many in India and here from buying, though no doubt they would like to do so; the Indians almost look upon the late Mahatma as a saint.

The new Gibbons K.G. VI catalogue has caused great interest, and a collector has asked the writer which stamp he considers the biggest bargain. Well, the stamp happens to be a pair, and it is the 2d. of South Africa No. 58. This is listed at 2/6, and £1 is much nearer its real value. Try and find a mint pair. You can also afford to pay 2/6 for a used pair, though Gibbons price them at 6d.

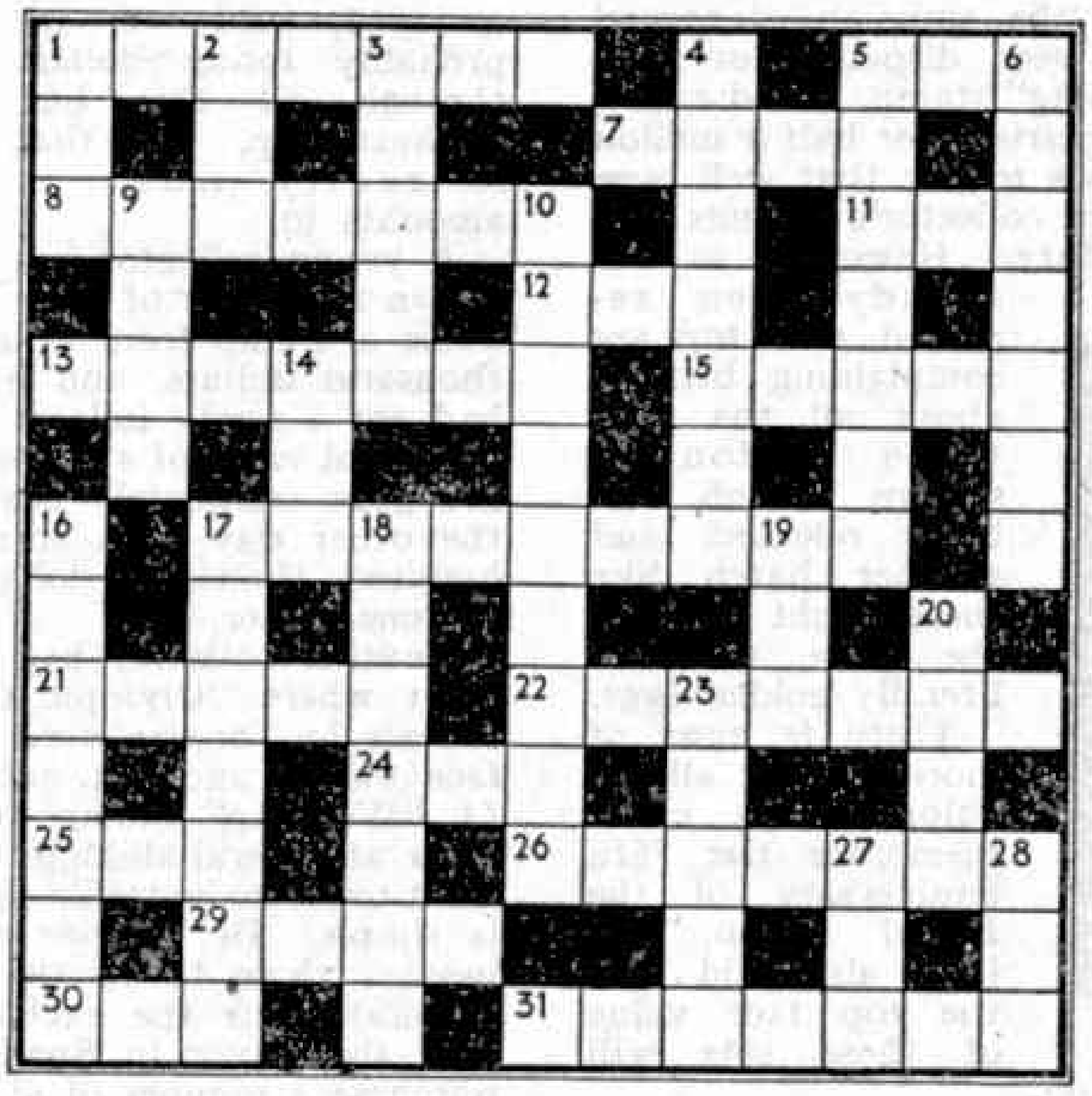
Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

October Crossword Puzzle

CLUES ACROSS

1. Lubricated
5. Decay
7. Narrow Fabric
8. Poems
11. Favourite
12. Little Devil
13. Open Carriage
15. Incendiarism
17. Implored
21. Write up
22. Steeped
24. Small Bird
25. Extinct Bird
26. Gaping
29. String
30. Wheel Track
31. Oriental



CLUES DOWN

1. Domestic Fuel
2. Consume
3. Small Fish
4. Unchecked
5. Rested
6. Gigantic
9. Pain
10. Earnestness
14. Age
16. Visionary
17. Take out
18. Anguish
19. Australian Bird
20. Church Dignitary
23. Young Deer
27. Wrath
28. Ensnaring Spirit

This month we have another of our popular crossword puzzles, the work of reader T. K. Chaplin, whose previous efforts have always aroused interest. The puzzle is on straightforward lines. There are no alternative solutions, each clue meaning exactly what it says, and only words that can be found in Chambers' or any other standard dictionary are included.

There are the usual two Sections, for Home and Overseas readers respectively, and in each of these prizes of 21/–, 15/– and 10/6 will be awarded for the best entries in order of merit. In the event of a tie the judges will take neatness and originality into account.

Readers' solutions should be addressed *"October Crossword, Meccano Magazine, Binns Road, Liverpool 13."* Closing dates: Home Section, 30th November; Overseas Section, 30th April 1949.

Railway Mysteries

Railwaymen have their own names for many railway features. A well-known example is "Tommy Dodd," which is a type of ground signal. Our second competition this month, based on a suggestion by reader F. Mills, Kearsley, is concerned with railway names and expressions of this kind, and readers are asked to give a brief explanation of each of them.

Here are the names, 15 in all. 1, **Peg**; 2, **Jim Crow**; 3, **Cripple**; 4, **Six-foot**; 5, **Dummy**; 6, **On the floor**; 7, **Gone inside**; 8, **Cut**; 9, **Bobby**; 10, **Blinkers**; 11, **Blow-up**; 12, **The road**; 13, **Rake**; 14, **Dart**; 15, **Bag**.

When satisfactory explanations for all of these terms, or as many as possible, have been found, they should be written out in order, with the appropriate numbers. Entries should then be forwarded to *"Railway Terms Contest, Meccano Magazine, Binns Road, Liverpool 13."*

In each of the two sections of this competition, for Home and Overseas readers respectively, there will be prizes of 21/–, 15/– and 10/6 respectively for the best solutions, and in addition there will be Consolation Prizes for good efforts that just fail to gain the chief awards. If there is a tie for any prize, the judges will take the novelty of the entry itself into consideration.

Closing dates are 30th November in the Home Section and 30th April 1949 in the Overseas Section.

October Photographic Contest

In this, the tenth of our 1948 series, we turn to railways for our subject. Entrants are asked to send in photographs of railway interest. These may show locomotives, trains, interesting lengths of track, stations, signal cabins and signals, railwaymen at work, in fact anything with railway items as the central feature.

Each entry must have been taken by the competitor, and on the back of the print must be stated exactly what the photograph represents. A fancy title may be added if desired.

Entries will be divided into two sections, A for readers aged 16 and over, and B for those under 16. They should be addressed *"October Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13."* There will be separate sections for Overseas readers, and in each section prizes of 21/–, 15/– and 10/6 will be awarded. Closing dates: Home Section, 30th October; Overseas Section, 31st March 1949.

Competition Results and Solutions

HOME

APRIL 1948 THRILLS CONTEST

1st Prize: P. R. Barwick, River-in-Dover. 2nd Prize: D. Barrington, Gravesend. 3rd Prize: D. Kemp, Gillingham. Consolation Prizes: P. D. Atkinson, Chester; W. Lake, Beckenham; C. E. Wrayford, Bovey Tracey.

APRIL 1948 LOCOMOTIVE CONTEST

1st Prize: S. Newton, Leicester. 2nd Prize: B. Bamford, Wolverhampton. 3rd Prize: A. R. Bingham, March. Consolation Prizes: E. Cassidy, Manchester 19; K. Pettinger, Troon; D. Moulson, Edinburgh 8; D. Eaton, Newton-le-Willows.

APRIL 1948 PHOTOGRAPHIC CONTEST

1st Prize, Section A: H. Paroussi, Cam; Section B: J. W. Hind, Nottingham. 2nd Prize, Section A: G. P. Clark, Moreton-in-Marsh; Section B: B. B. Foskett, London S.W.15. 3rd Prize, Section A: N. Boyd Maunsell, Winchester; Section B: D. R. Abrey, Hull. Consolation Prizes, Section A: J. R. Miller, Dunstable; J. H. Taylor, Aberdeen; Miss A. Roe, Sheffield 9; J. Griffiths, Hengoed; Section B: J. G. McDowell, Ballymena; R. D. Gilchrist, Birkenhead; P. Clifford, Wembley.

MAY 1948 PHOTOGRAPHIC CONTEST

1st Prize, Section A: R. R. Bushell, Hoddesdon; Section B: J. W. Hind, Nottingham. 2nd Prize, Section A: J. R. Miller, Northall; Section B: P. Lowe, Derby. 3rd Prize, Section A: Miss A. Roe, Sheffield; Section B: A. J. Brown, Leiston. Consolation Prizes, Section A: F. E. Woodward, Catterick Camp; E. D. Gaylor Mason, Romford; B. Watson-Jones, Manchester; J. Griffiths, Hengoed; A. C. Bradley, Derby; S. S. Pethybridge, Newton Abbot; Section B: H. Meyer, Chandler's Ford; A. Lewis, Cardiff; W. Bodkins, Farnham.

MAY 1948 STORK FIGURES CONTEST

1st Prize: A. G. Farmer, Headley. 2nd Prize: R. M. Spinks, Wembley. 3rd Prize: C. E. Lloyd, Liverpool 16. Consolation Prizes: E. E. Wilkinson, Aspatria. G. T. Cox, Beverley; J. H. Boyes, Manchester 21; P. R. Daniels, Ashford.

MAY 1948 RAILWAY CONTEST

1st Prize: E. P. Goodenough, Enfield. 2nd Prize: J. R. Peverley, Dover. 3rd Prize: T. H. Powell, Birmingham 14. Consolation Prizes: W. R. Preston, Northwood; M. Lord, Nelson; D. Ellis, New Malden; J. F. Warren, Nottingham.

OVERSEAS

NOVEMBER 1947 PHOTOGRAPHIC CONTEST

1st Prize, Section A: B. H. Soup, Oslo, Norway; Section B: T. Clements, Haifa, Palestine. 2nd Prize, Section A: Miss N. P. Milne, Hawke's Bay, N.Z.; Section B: J. Jones, Bombay, India. 3rd Prize, Section A: L. W. Humm, Geraldine, N.Z.; Section B: T. P. Mansergh, Auckland S.E.2, N.Z. Consolation Prizes: A. Holcroft, Invercargill, N.Z.; D. Woods, Nedlands, Australia; T. Kitt, Hawke's Bay, N.Z.; G. Burns, Warrugal, Australia; D. Hicks, B.A.O.R. (2).

NOVEMBER 1947 LOCOMOTIVE CONTEST

1st Prize: K. Andrews, Brisbane, Australia. 2nd Prize: B. Parker, Vancouver, Canada. 3rd Prize: A. Dalal, Bulawayo, S. Rhodesia. Consolation Prize: T. Bell, Bombay, India.

NOVEMBER 1947 DRAWING CONTEST

1st Prize: I. D. Maffey, Christchurch, N.Z. 2nd Prize: D. Hicks, B.A.O.R. (2). 3rd Prize: R. H. Clatworthy, Salisbury, S. Rhodesia. Consolation Prizes: J. Thompson, Wimbin, N.S.W., Australia. G. T. Dey, Hamilton East, N.Z.

DECEMBER 1947 ADVERTISEMENT LETTER SQUARE

1st Prize: A. L. Crossin, Winnipeg, Canada. 2nd Prize: M. Koliasnikopp, Brakpan, S. Africa. 3rd Prize: C. Tan, Singapore. Consolation Prizes: B. J. Ivory, Rangiora, N.Z.; R. D. Moffat, Dunedin, N.Z.; R. Garcia, Trinidad, B.W.I.

DECEMBER 1947 RAILWAY CONTEST

1st Prize: J. C. Wheeler, East London, S.A. 2nd Prize: M. A. Halling, Auckland N.2, N.Z. 3rd Prize: B. Biswas, Belgachia, India.

DECEMBER 1947 PHOTOGRAPHIC CONTEST

1st Prize, Section A: K. J. Milne, Hawke's Bay, N.Z.; Section B: G. Taylor, Ontario, Canada. 2nd Prize, Section A: L. King, Victoria, Australia; Section B: J. M. McLaren, Stanley, Falkland Islands. 3rd Prize, Section A: L. W. Humm, Geraldine, N.Z.; Section B: P. Jones, Salisbury, S. Rhodesia.

SOLUTIONS

DECEMBER 1947 ADVERTISEMENT LETTER SQUARE

Meccano, A.B.C., Bassett-Lowke, Baer, Dunlop, Vitality, B.S.A., Hornby, Bond's, Halford, Triang, Hamley, I.C.S., Astra, Hercules, Plasticine, Lotts, Letts.

DECEMBER 1947 RAILWAY CONTEST

1. Chesapeake and Ohio. 2. Boston and Maine. 3. Lehigh Valley. 4. Union Pacific. 5. Western Pacific. 6. Great Northern. 7. Erie. 8. Central Vermont. 9. Illinois Central. 10. Western Maryland. 11. Pere Marquette. 12. Colorado and Southern.

JANUARY 1948 RAILWAY QUESTIONS CONTEST

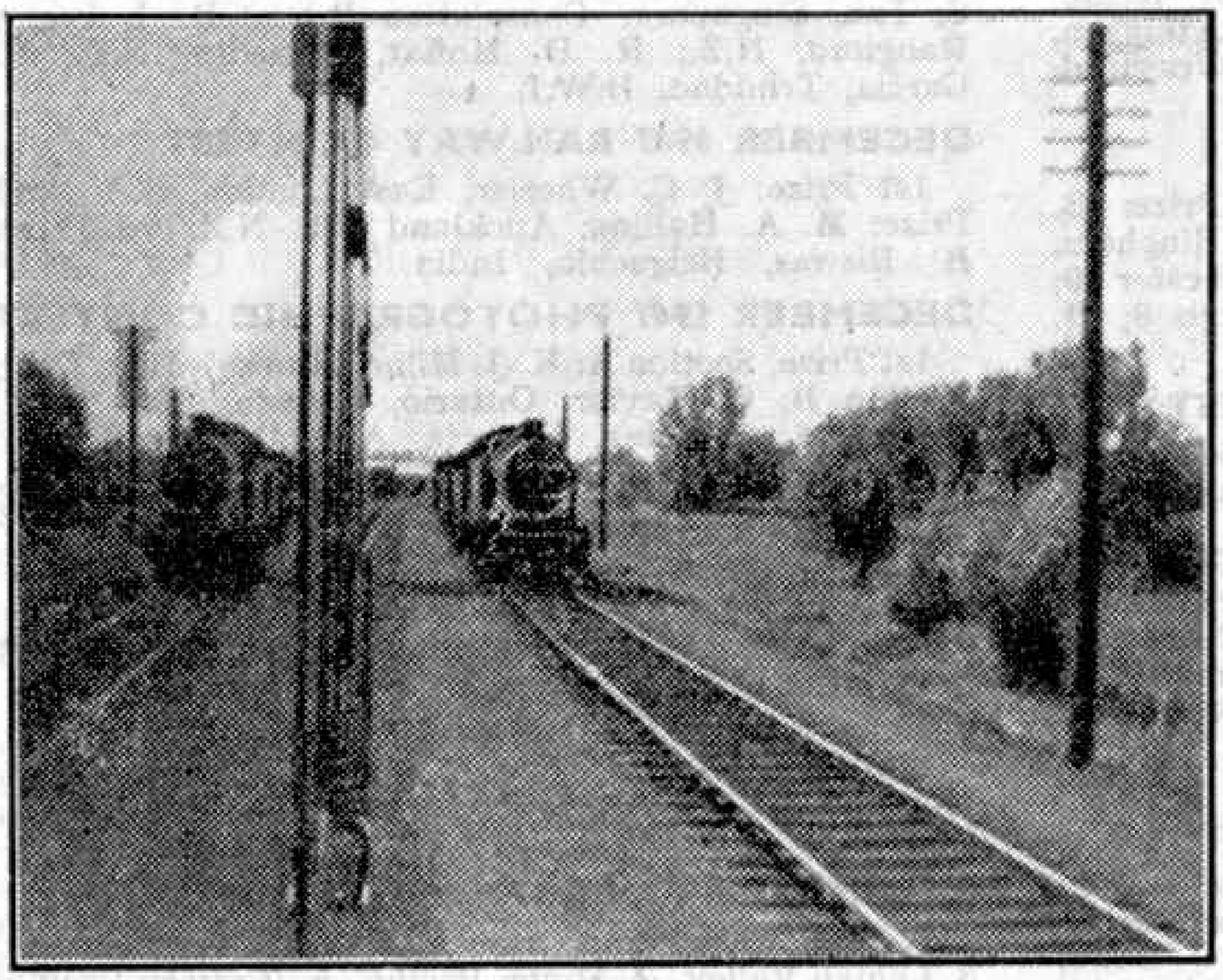
1. An engine fired and ready for work. 2. A lever frame controlling the entrance to a siding remote from a signal cabin. 3. An electric signal lighted by the approach of a train. 4. A shunting or other miniature signal. 5. "J. W. Bowker" temporarily named "General McPherson." 6. A wagon with grease-lubricated axle boxes. 7. A signalman. 8. An engine not fitted with superheater. 9. L.N.W.R. "18 inch" 0–6–0; L.M.S. Standard 2–6–0; L.M.S. Standard 0–8–0. 10. C. & N.W., U.P. and S.P. Railroads.

1 6	2 1	3 5	4 4	5 3	6 5	7 8	8 2	9 5	10 3	11 0	12 4
13 2	1	9	7	14 4	0	0	0	15 3	3	16 9	9
17 3	4	4	7	18 4	7	0	0	19 6	9	0	9
7	20 5	21 2	1	9	5	22 7	23 2	5	6	4	8
24 6	0	25 2	26 1	27 5	28 6	4	29 1	30 5	31 7	0	32 5
33 1	8	34 3	2	9	1	0	35 4	1	4	36 9	5
37 6	0	2	6	38 2	2	0	39 4	9	0	3	1
40 5	0	8	41 9	42 7	7	43 2	0	0	44 8	2	2
45 3	46 1	0	7	47 3	48 5	49 5	1	9	1	50 2	51 5
52 3	3	53 7	54 9	55 4	9	0	56 2	57 2	58 9	5	0
59 5	0	6	1	60 5	6	6	4	61 3	2	8	4
62 3	8	6	5	2	63 2	7	4	5	64 1	0	1

November 1947 Locomotive Cross-Number Solution.

A "GHOST" PHOTOGRAPH

At first glance the accompanying picture seems to show two trains running neck and neck on parallel tracks. Closer inspection shows that what looks like some



vertical structure between the tracks is the side of the train in which the reader who took the photograph was travelling. On the right of the picture is the train which he photographed while leaning out of an open carriage window; the "ghost" train on the left is part of the reflection of the scene in a window further along, caught by the camera. This photograph was taken by A. W. Woodman, Southall, Middlesex.

The Romance of Ship Names—

(*Continued from page 344*)

"round" was often suggested as the right one and was attached to the story of one of the first British steamers which the Japanese bought. They took her over without waiting to be shown how to stop her engines, with the result that they had to steam her round and round Yokohama Harbour until her fires died down and her steam ran out, when she was towed home by innumerable boats. When the Japanese became obsessed with the idea of world domination that explanation, over which they used to laugh heartily, apparently struck them as being undignified and latterly they usually suggested that the name "Maru" was given to anything particularly favoured by its owner—a favourite sword or war horse, for instance—and they preferred to have that accepted as applying to their ships.

Aircraft of the Future—(*Continued from page 332*)

and you have 13 or perhaps 15 years before this type, as ultimately chosen, is likely to be doing the work which private enterprise in the U.S.A. is already doing—almost. And considering how far our "far-flung Empire" is being flung away, where will our Long Range Empire be by then?

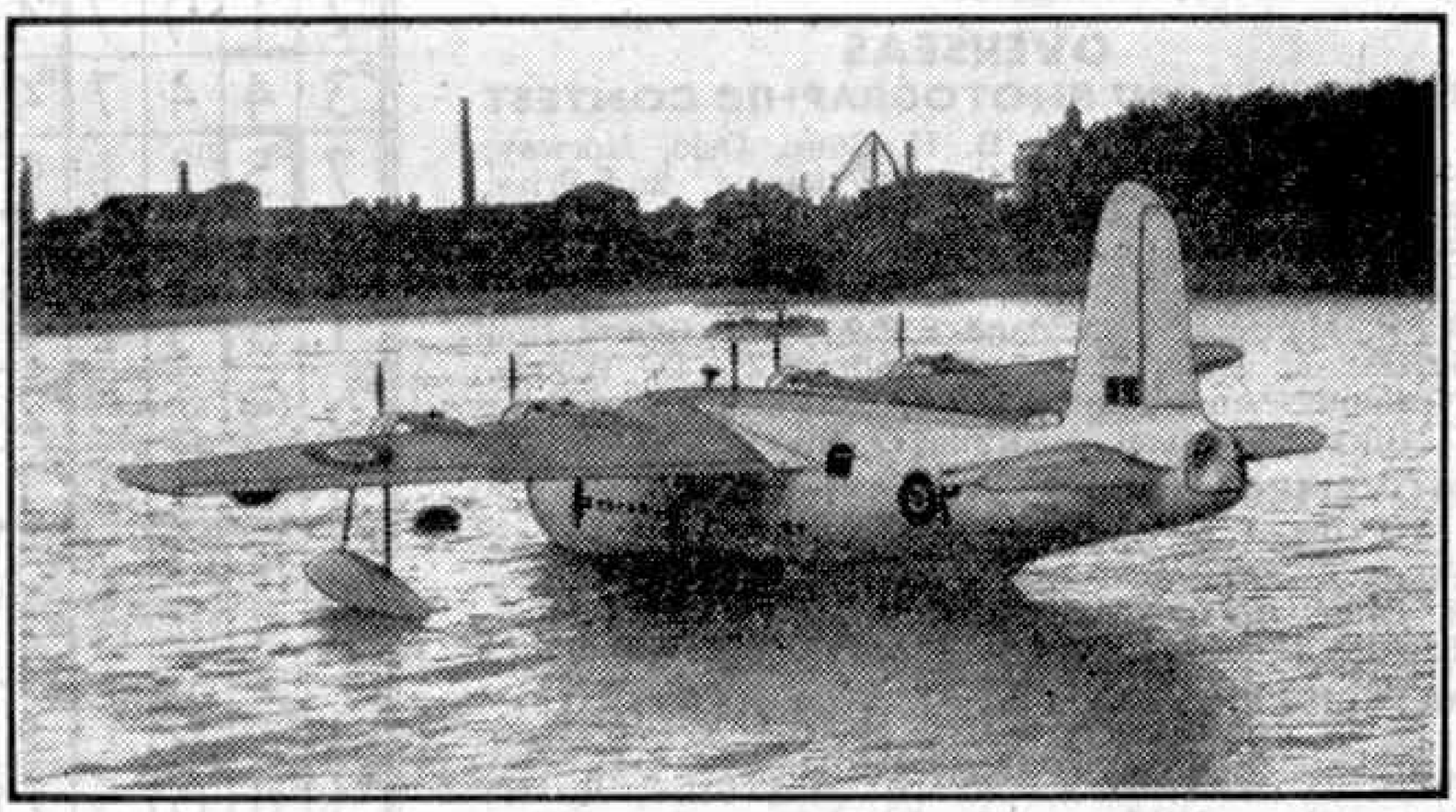
Round about 1930 Sir Hugh (now Viscount) Trenchard, then Chief of the Air Staff, pointed out that, working on the same official lines, *seven* years were needed to get a fighter or light bomber from the project stage into squadron service. Mr. (now Sir) Richard Fairey used to take the official requirements, build an aeroplane in a year to beat them, as a private venture (P.V. type) and then sell 50 or 100 or 200 to the R.A.F. as "stop-gaps." There was a period when there were more Fairey aircraft in the R.A.F. than all other types put together. But such Private Venturesomeness would not be allowed in these days. Permits for material could not be got. So we must keep to our official long-term planning both for service and Civil aircraft.

A MODEL RAILWAY ON TOUR

A mobile model railway exhibition is something of a novelty and readers will be interested to hear that Mr. H. Elliott, of Spalding, intends to tour the country with such an exhibit. This layout is planned to occupy a space of 22 ft. × 20 ft. with a crash barrier erected all the way round to prevent possible mishaps.

There are nine locomotives; and six of these are electric and three driven by steam. The electric locomotives are scale models and include a 4-6-2 "*Flying Scotsman*," a 4-6-2 "*Princess Elizabeth*" and a 4-6-2 "*Duchess of Montrose.*" There is also a 4-4-0 of L.N.E.R. type, a 4-6-0 "*Silver Jubilee*" and a streamlined 4-6-2 "Coronation" class engine. The three steam engines are respectively a green L.N.E.R. 4-6-2, a black 4-4-0 for goods traffic and a streamlined L.N.E.R. 4-6-2 "*Dominion of Canada.*"

There are 35 main line coaches, including internally furnished dining cars and saloons. Over 50 goods vehicles of various types make up the rolling stock. The lineside effects range from a complete steel works, over 16 ft. in length, to a miniature "Odeon Cinema" and all of them are illuminated. The total value of the layout is said to be £1,000.



An R.A.F. "Sunderland" flying boat photographed at sunset. This picture was taken by F. G. Reynolds, Sidcup, and entered in an "M.M." Photographic Contest.

Fireside Fun

"What animal is satisfied with least nourishment?"
"The moth. It eats nothing but holes."

* * * *

"There's a big crowd at that clothing store. What's the idea?"
"Oh, they've promised a cigarette lighter and a coat hanger to each customer."
"Great Scott! Are they really doing that?"
"Yes. Everyone gets a match and a nail."

* * * *

"What are you running away for?" You said you could lick me with one hand tied behind your back."
"I'm just going home to get some string."

* * * *

Teacher: "Do you know what water is?"
Tommy: "Yes Miss. A colourless liquid that turns black when you put your hands in it."

* * * *

"This book says big fish in the sea eat up the little sardines, mother."
"Yes, I think that's right."
"But how do they open the tins?"

* * * *

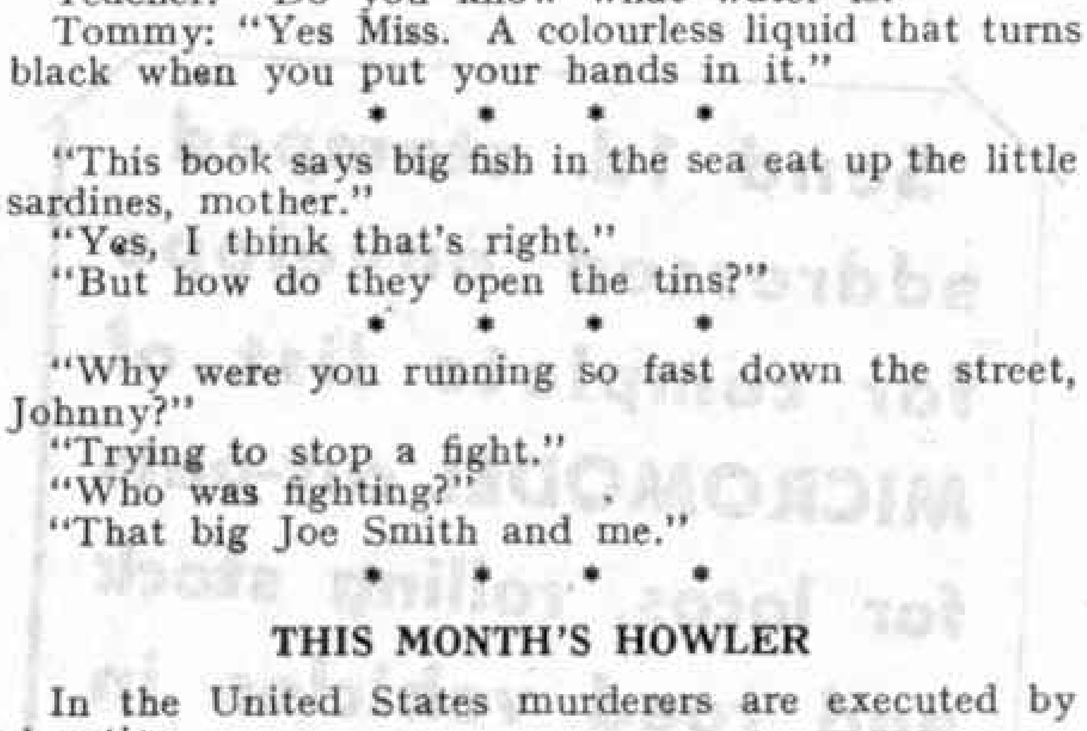
"Why were you running so fast down the street, Johnny?"
"Trying to stop a fight."
"Who was fighting?"
"That big Joe Smith and me."

* * * *

THIS MONTH'S HOWLER

In the United States murderers are executed by elocution.

* * * *

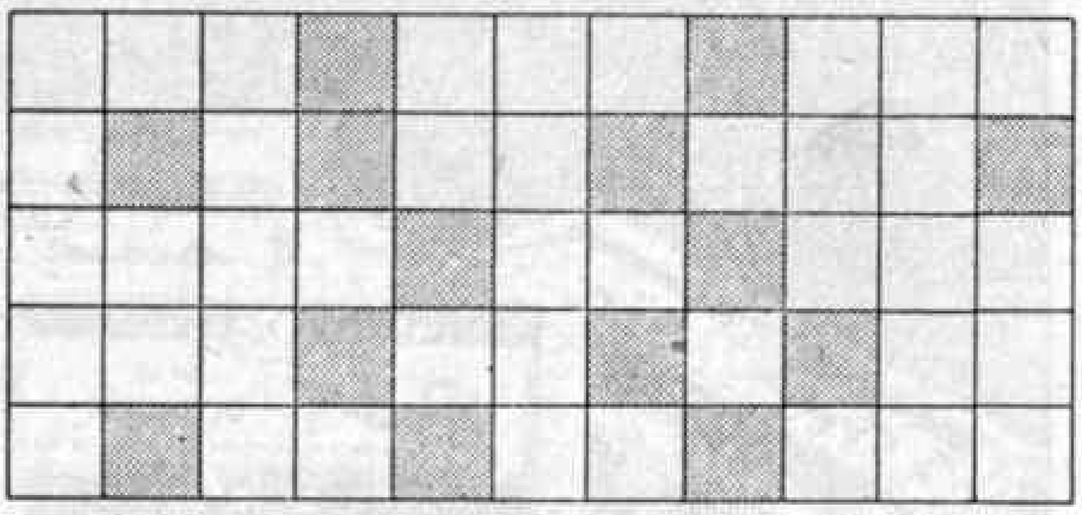


"That's the most water I ever saw."
"You ain't seen nothing yet. That's only the top of it."

BRAIN TEASER

SHADY BUSINESS

In the rectangle of 55 squares shown below, 14 squares are shaded. Can you shade in 11 other



squares and leave outlined in white the initials of a well known branch of the services? K.J.B.

* * * *

"I'm sorry Sir, I can't show you round the castle just now. Smoking isn't allowed."
"But I'm not smoking."
"No, but I am!"

* * * *

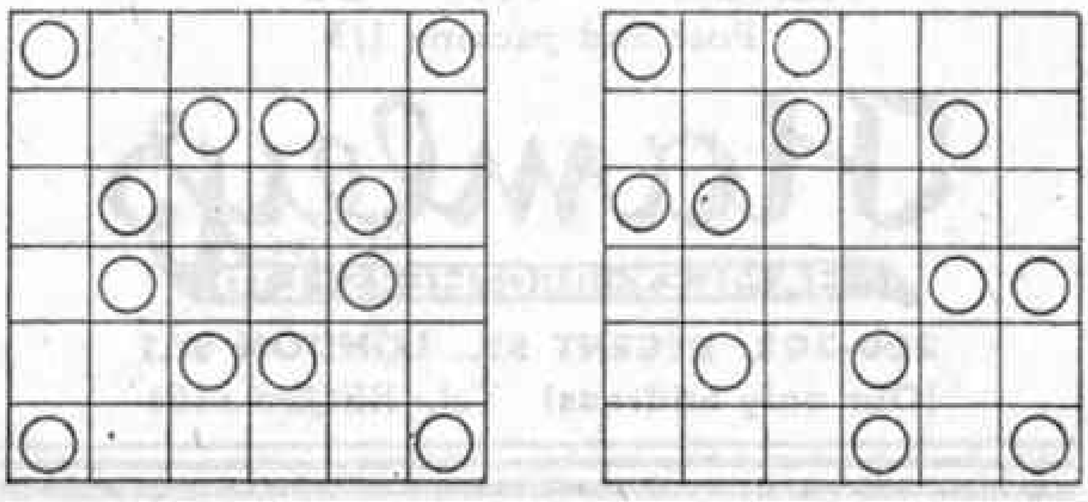
SOLUTIONS TO LAST MONTH'S PUZZLES

There were two solutions to the first of the September Brain Teasers and these are shown in the diagrams at the foot of this column.

The houses in our second puzzle last month were Nos. 2, 4, 6, 8 and 10. This tells us at once that Kresky's house was No. 8 and Smythe's No. 4, for if their houses were numbered 4 and 2 an impossible result would follow. From this it is soon worked out that the houses of Ritz, Astor and Prince were numbered 2, 6 and 10 respectively.

In our third puzzle the letter L must represent the figure 1. V can be 2, 3 or 4, but whatever number it is the total in Jones' possession must be £11.

* * * *



JOHNSONS OF HENDON ARE AGAIN ABLE TO OFFER A RANGE OF PHOTOGRAPHIC CHEMICALS IN SMALL AND HANDY PACKAGES UNDER THE BRAND NAME OF

PACTUMS

JOHNSON PACTUMS are exceptionally useful for those amateur photographers who like to make up small quantities of solution at a time. Toners, intensifiers and Reducers are only needed occasionally and to have the chemicals at hand in this convenient form saves time and trouble. Get a few PACTUMS of each kind and keep them ready in your dark room.

*THE MOST POPULA PACTUM PACKAGE IS M-Q DEVELOPER CONTAINING ALL THE CHEMICALS REQUIRED TO MAKE 10-OZ. OF SOLUTION FOR DISH DEVELOPMENT. THIS M-Q PACTUM WILL MAKE 16-OZ. OF SOLUTION FOR USING IN A TANK

The following packings are available:

*M-Q DEVELOPER (Metol-Quinol)
COPPER INTENSIFIER for 8-oz.
REDUCER sufficient for 8-oz.
BLUE TONER for making 10-oz.
SEPIA TONER to make up 8-oz.
GREEN TONER for making 10-oz.

Ask your Dealer for Scales Brand Pactums.

JOHNSONS OF HENDON

HENDON LONDON N.W.4 ESTABLISHED 1743

HOW'S THAT?

You may think 'it isn't cricket' to talk about cricket bats in the football season. But we've got big news! We have a stock of boy's-size cricket bats supplied by leading makers. There aren't a lot, as export demands had to come first. So you'd better buy now, even if it is winter-time, rather than find that you're "stumped" in the Spring.

SIZES		
3	... ...	30/3
4	... ...	33/7
5	... ...	36/8
6	... ...	39/6
Harrow	...	55/-

Post and packing 1/3

Hamleys
Estd 1760
HAMLEY BROTHERS LTD
200-202, REGENT ST., LONDON W.1
(Our only address) *Tel.: REGent 3161*

Send 1d. stamped addressed envelope for complete list of MICROMODEL cut-outs for locos, rolling stock and road vehicles in '00' and '000' scales

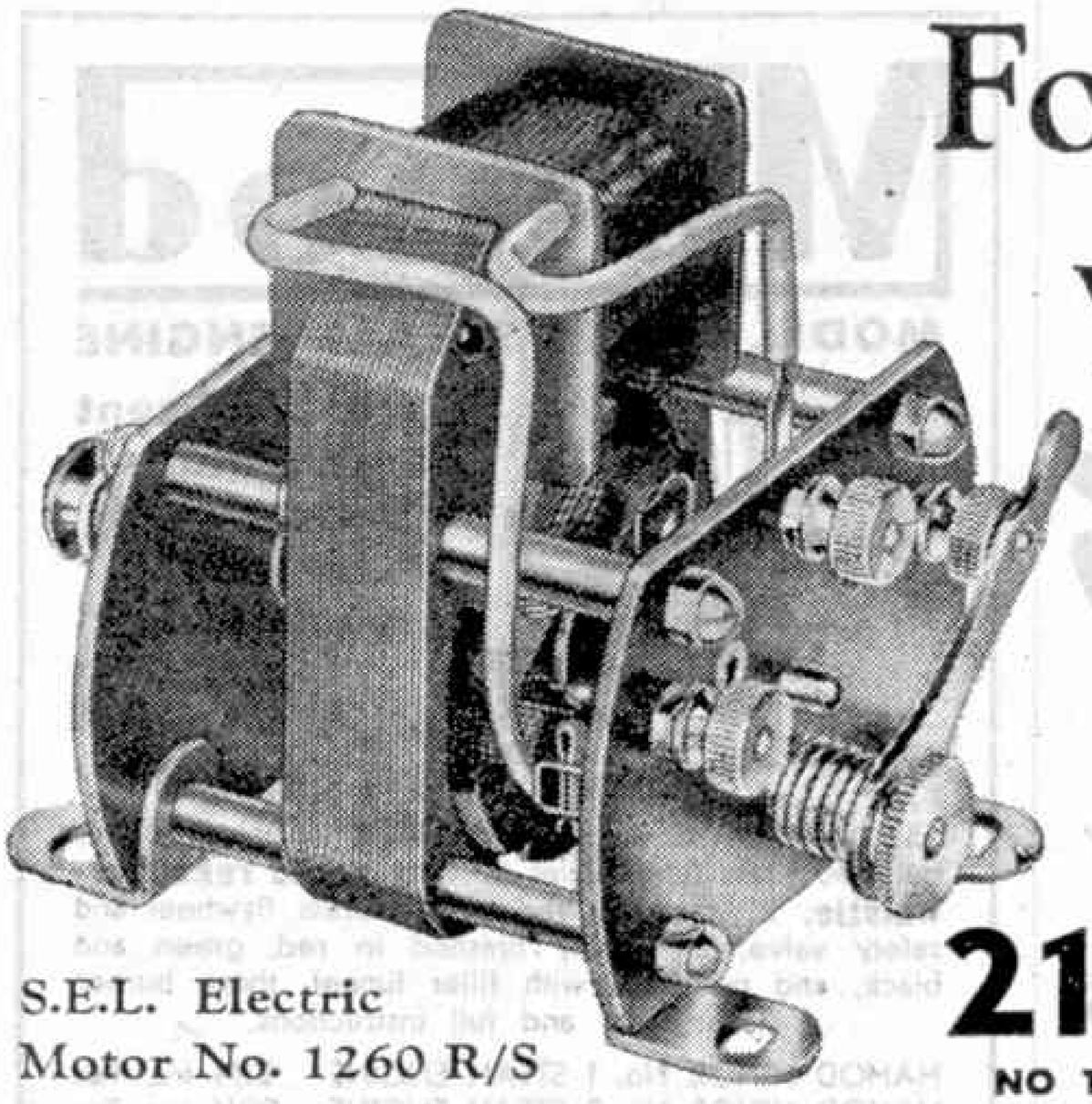
Latest addition, "Cameronian" Locomotive, Price **4d.** post 1d.

Modelcraft's **(SEPT. ISSUE) No. 7**

MAGAZINE & LIST 1/-

Nearly 500 items listed. Articles by leaders in every branch of the art of modelmaking. A rich source of ideas for future modelmaking.

MODELCRAFT LTD.
77 (H), Grosvenor Rd., London S.W.1



S.E.L. Electric
Motor No. 1260 R/S

For driving your models

This sturdy high-speed 4/6v. AC/DC Electric Motor is fitted with a reversing switch and is the ideal electric motor for driving models. Excellent for use in model motor boats, and easily fitted. It can be operated by a battery, accumulator, or by mains current through S.E.L. Transformers Nos. 1301, 1302, or 1303.

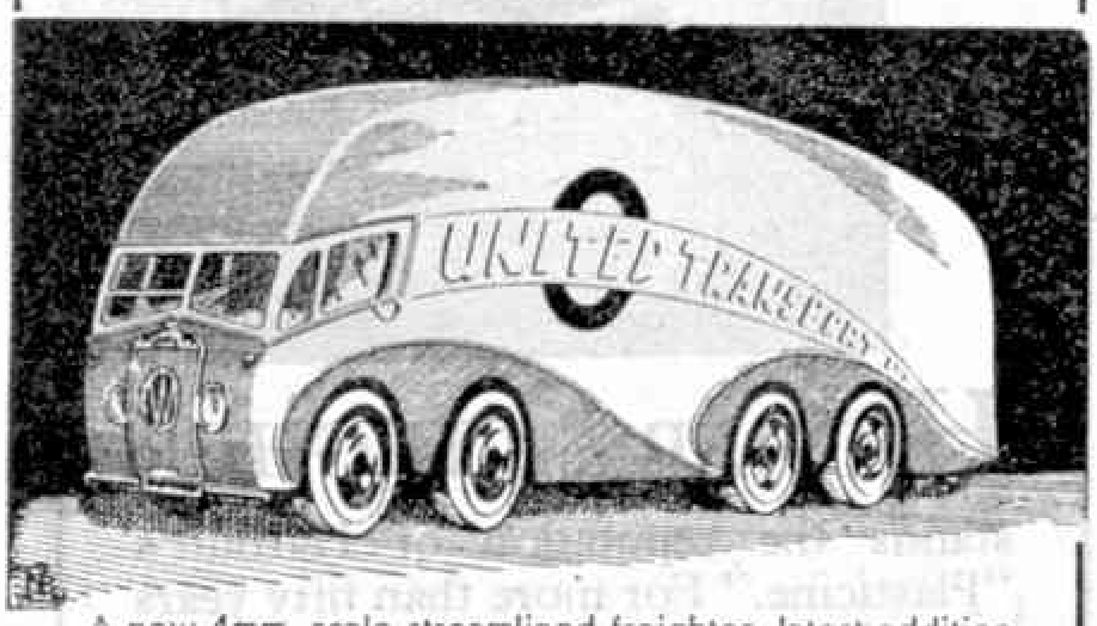
21/-
NO TAX

Ask to see the full S.E.L. range of Electric Motors, Stationary Steam Engines, and other products of interest to the model enthusiast, at any good dealers or stores. If any difficulty, write to

SIGNALLING EQUIPMENT LTD (Dept. 3H), Merit House
Potters Bar, Middlesex

WILSON'S

LEADERS & PIONEERS
PRESENT
THE 'OCTOPUS STREAMLINER'



A new 4mm. scale streamlined freighter, latest addition to the Wilson lorry fleet. Kit includes fully shaped body, metal faced green and silver cabin and mud-guard fairings, three-colour transfers, 13 wheels and all the usual Wilson refinements.

Price **8/4** (including 2/1 tax)

4mm. catalogue and 7 mm. leaflet 1/- (P.O.) or leaflet only S.A.E.

WILSON'S LORRIES LTD., Dept. M
1. GREAT WINCHESTER ST., LONDON E.C.2

BOND'S

SCALE MODEL TRACK PARTS

The real thing in miniature

PRICES:

	"00" Gauge	"0" Gauge
Steel Rail ..	3/- doz. yds.	4/- doz. yds.
Brass Rail ..	5/- doz. yds.	9/6 doz. yds.
Chairs	2/6 100	2/9 100
Fishplates ..	6d. doz.	8d. doz.
Wooden Sleepers	1/6 100	4/- 100
Track Gauge ..	1/6 each	1/9 each

L.M.S. PATTERN COACH BOGIES
Gauge "00" **11/6** pair Gauge "0" **17/6** pair

DIAMOND PATTERN WAGON BOGIES
Gauge "0" correctly built up in brass **25/6** pair

GAUGE "0" SPRING BRASS BUFFERS
Round Head **9d.** each Oval Head **1/2** each

All Prices Plus Packing and Carriage.

BOND'S O' EUSTON ROAD LTD.
357, EUSTON ROAD, LONDON N.W.1
Est. 1887 *'Phone EUSton 5441-2*

Look around Halfords

...for every accessory that's necessary

THE HALFORD CYCLE COMPANY LIMITED
Head Office: 239 CORPORATION STREET, BIRMINGHAM 4

8HL/I

Mamod

MODEL S.E.2 STEAM ENGINE

A magnificent miniature power plant for driving your models

48'6

inc. Purchase Tax

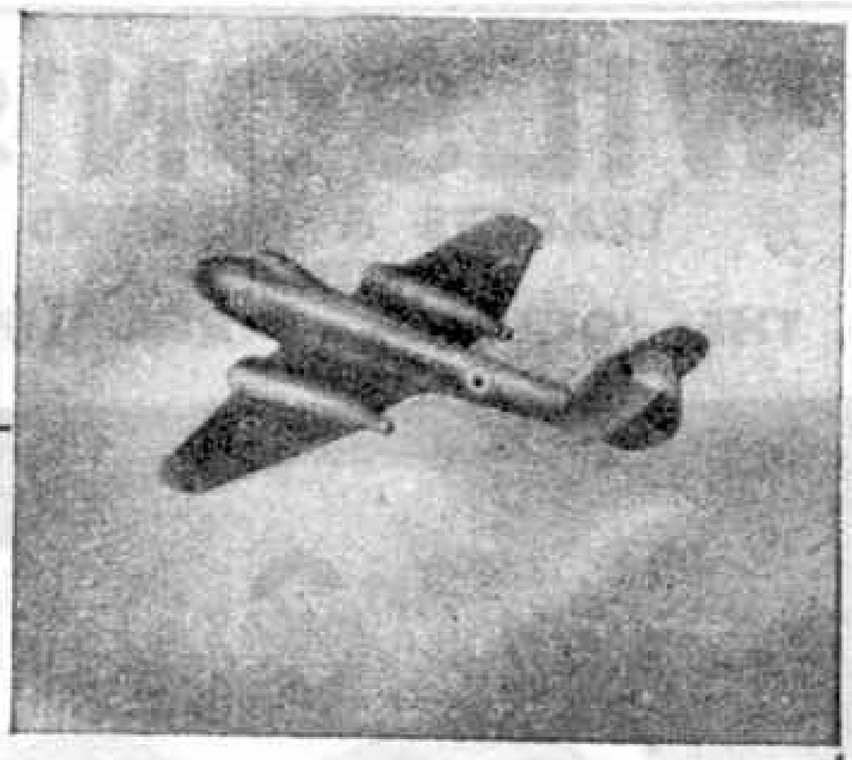
This splendid model is fitted with seamless highly polished brass tube boiler 5" long, **speed regulator, whistle,** 2" diameter red-spoked brass flywheel and safety valve, beautifully finished in red, green and black, and complete with filler funnel, three burner spirit lamp and full instructions.

MAMOD MINOR No. 1 STEAM ENGINE	21/4 inc. Tax
MAMOD MINOR No. 2 STEAM ENGINE	29/6 inc. Tax
MAMOD S.E.1 STEAM ENGINE ...	41/4 inc. Tax

ALL MAMOD ENGINES AND WORKING MODELS FIT MECCANO AND ARE 100% GUARANTEED

Be sure to ask your dealer to show you this famous range.

MALINS (ENGINEERS) LIMITED
ST. MARY'S ROW, BIRMINGHAM 4



HIGHER and HIGHER

stands the reputation of Harbutt's "Plasticine." For more than fifty years it has been the only reliable modelling material for home amusement, designing, experimenting, and the handyman. "Plasticine" is ever-plastic and hygienic, and it never deteriorates.

'Plasticine'

HARBUTT'S PLASTICINE LTD.
BATHAMPTON, SOMERSET

THE FUTURE IS YOURS
PREPARE FOR IT NOW

Maximum production, on which the life of the nation rests, depends on high technical skill. This gives marvellous opportunities to young men who have acquired such knowledge and efficiency as that contained in an I.C.S. Course of Instruction.

THE DEMAND FOR WELL-TRAINED MEN IS URGENT AND UNLIMITED — BUT THERE IS NO WORTH-WHILE PLACE FOR THE UNTRAINED

If you need technical training, our advice on any matter concerning your work and your career is yours for the asking—free and without obligation. Let us send you full information regarding the subject in which you are specially interested. DON'T DELAY. Make ACTION your watchword.

The successful man DOES to-day what the failure INTENDS doing to-morrow. Write to us TO-DAY.

The I.C.S. offer Courses of Instruction in a wide range of subjects, including:

Accountancy
Advertising
Aeronautical Engineering
Air and Vacuum Brakes
Air-Conditioning
Architecture
Architectural Drawing
Auditing
Boilermaking
Book-keeping
Building
Business Training
Business Management
Carpentry
Chemical Engineering
Chemistry, Org. & Inorg.
Civil Engineering
Clerk of Works
Coal Mining
Commercial Art
Concrete Engineering
Cotton Manufacturing
Diesel Engineering
Draughtsmanship
(State which branch)
Drawing Office Practice
Electrical Engineering
Eng. Shop Practice
Fire Engineering
Fuel Technology
Heating and Ventilation
Hydraulic Engineering
Hydro-Electric
Illumination Eng.
Internal Comb. Eng.
Joinery
Journalism (Free Lance)
Machine Designing
Marine Engineering
Mechanical Drawing
Mechanical Engineering
Mine Surveying
Mining Electrical
Motor Engineering
Motor Mechanic
Motor Vehicle Operation
Plastics
Quantity Surveying
Radio Engineering
Radio Service Eng.
Railroad Engineering
Refrigeration
Salesmanship
Sanitary Engineering
Sheet-Metal Work
Short-Story Writing
Steam Engineering
Structural Steelwork
Surveying
(State which branch)
Telegraph Engineering
Textile Designing
Toolmaking
Welding, Gas & Elec.
Woodworking Drawing
Woollen Manufacturing
Works Engineering
Works Management

And most of the Technical, Professional, Commercial, Educational and Civil Service Exams.

(Examination students are coached till successful.)

YOU MAY USE THIS COUPON
(*Penny stamp on unsealed envelope*)

INTERNATIONAL CORRESPONDENCE SCHOOLS LTD.
Dept. 218, International Buildings, Kingsway, London W.C.2

Please send your free booklet describing I.C.S. Courses in .....

Name ..... Age .....

Address .....

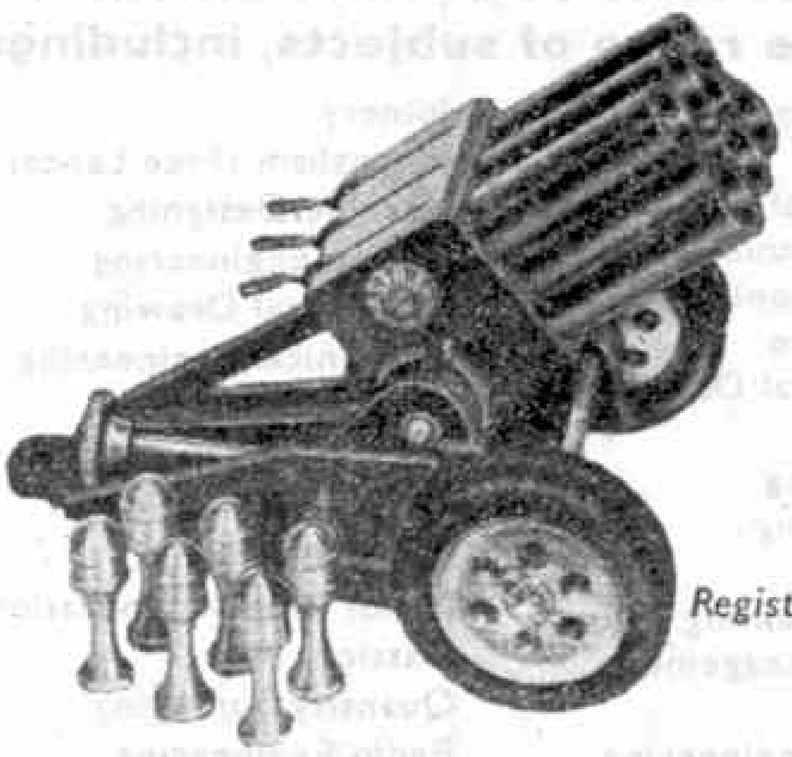
.....

I.C.S.

THE *NEW* ASTRA ROCKET GUN

This most spectacular gun can be used with or without caps. Fires single rockets or salvos of three or six. Supplied with six rockets.

Price **18/10** inc. purchase tax.



Registered Design

Sole patentees and manufacturers:

ASTRA PHAROS LTD

239, EARLS COURT ROAD, LONDON S.W.5

HOBBIES

BRITISH FRETWORK OUTFITS.

for

TOYMAKING
MODELMAKING
FRETWORK

A splendid hobby making things in wood for use, for exhibition, or as presents. Full size patterns, and materials for hundreds of different things. Complete tool sets at all prices. See them at Hobbies Branches, Stores, Ironmongers and Toyshops.

Free illustrated leaflets from Dept. 96, Hobbies Ltd., Dereham, Norfolk.

More Fine Bargains!!!

MOTORS. The Lesdix Micro Motor, totally enclosed, 12/24 volts. A.C./D.C. ball bearings, laminated fields, small Vee pulley and centrifugal relay speed governor on shaft—removable if second shaft is required. Precision made ex-W.D. stock, **21/-**.

TELEPHONES. Wall type constructors' parts, ex.-G.P.O., comprising cabinet, 8 in. x 6 in. x 3 in., mike, transformer and condenser, mag. bell, hand mag. gen. for ringing watch type receiver on switch hook, **35/-** per pair, with wiring diagram.

THE DEM. CONTINUITY-TESTER. A self-contained portable circuit-tester for all electrical circuits. Almost pocket size, 6½ in. x 3¾ in. x 2⅛ in. A beautifully-made Govt. instrument; new, totally enclosed, polish wood case with carrying strap and contact switch. The experimenter's best friend. Worth 42/-. A limited number are offered at **12/6** post free. Ideal present for man or boy of any age.

INVISIBLE RAY CONTROL. The Raycraft Kit, with selenium bridge 10,000 ohm. Relay megostat, resistor, valve holder and instruction booklet, new, **45/-**.

BATTERY CHARGERS. A kit of parts for making a 2 volt ½ amp. charger, comprising transformer for 230 volt A.C. metal rectifier, terminals, ballast resistance, drilled baseplate and circuit diagram, **20/-** post paid.

LAMPS. Neon Lamps, 230 volt 0.5 watt miniature, **3/6**. Standard 230 volt 5 watt Neons, **3/9**. Postage 9d. extra.

Please include postage for mail orders.

ELECTRADIX RADIOS

214, Queenstown Road, London S.W.8

Telephone: MACaulay 2159

WEBLEY AIR PISTOLS

Marvellously accurate for target practice.

No licence required to purchase for use on enclosed premises.

Senior **Mark 1**
Junior **Webley Air Rifle**

Write for list. WEBLEY & SCOTT LTD.,
87, Weaman Street, Birmingham, Eng.

CHEMISTRY APPARATUS

Send Stamp for COMPLETE PRICE LIST

BOOKLETS:
"Experiments" 7d.
"Formulas" 10d.
"Home Chemistry" 2/3
Post Paid

BECK (Scientific Dept. G), 60, High Street
STOKE NEWINGTON, LONDON N.16

STAMP ADVERTISEMENTS

(See also pages 360 and 362)

"GEM" APPROVALS

THE SUPREME SERIES FOR THE MORE ADVANCED COLLECTOR.

From CORONATIONS to the SILVER WEDDING

Reasonable prices and good discount.

Write now—to: **G. E. MOAT**

"Leewards," Glastonbury Chase, Westcliff, Essex

RAILWAY ENGINE PICTORIALS FREE

Finland 2-colour charity, Cape Juby overprinted, Pair Djibouti. All fine large unused railway engine stamps. Request approvals, send 2½d. postage.

H. PEARSON, 3, Marina Avenue, New Malden, Surrey

★ **SCARCE JAP BURMA FREE!** ★

This genuine stamp (Cat. 3/-) issued during the war is missing from most collections. Free to you! Send 2½d. stamp and request discount approvals.

HEYWOOD'S, 8, Paton St., Manchester 1. (Est. 1880)

★ **FREE!** **CHANNEL IS. (Liberation) 1d. ISSUE**

To all approval applicants enclosing 2½d. stamp.

FRANCIS CURTIS LTD. (Dept. M.Z)
226, BAKER STREET, LONDON N.W.1

PENNY APPROVALS! Stamps catalogued to 3/6 each! Enclose postage. **J. Baguley, Pensilva, S.E. Cornwall**

Transport Books for you

Trains Illustrated (Nos. 9 & 10)	1/5½
Trains Annual (Nos. 1 or 2)	8/-
The World's Smallest Railway	2/9
ABC Locomotive Books S.R., G.W.R., L.M.S., L.N.E.R., each ...	2/2½
ABC of L.P.T.B. (Buses)	2/2½
ABC of L.P.T.B. (Trams)	2/2½
ABC of British Electrics	2/2½
Locos thro' the Lens	6/6
L.B. & S.C.R. Locos	3/9
S.E.C.R. Locos ...	3/9
L.S.W.R. Locos ...	3/9
McIntosh Locos of C.R. (Reprint)	3/9
My Best Railway Photos. 1—8, each ...	1/8½
9—10, each ...	2/2½
♦ ♦ ♦ Narrow Gauge British Railways ...	3/9
♦ ♦ ♦ Model Aviation	2/9
♦ ♦ ♦ Canals	3/9

IAN ALLAN LTD.
Mail Order Dept.
33, KNOLLYS ROAD, STREATHAM S.W.16

"O" NEW 'SKINLEY' BLUEPRINTS "OO"

126, L.N.E. 2-6-0 Tender Loco. "K.1," 2/6; 164, L.N.E. (Ex. G.E.) 0-6-0 Tram Loco. "J.70," 1/9; 289, G.W.R. 0-6-0 Tender Loco. No. 2291, 2/-; P.97, S.R. Motor Coach (8 car Sub. Unit), 1/9; P.98, Outer Trailer Car for above, 1/9; P.99, Trailer Coach for Centre Unit of above, 1/9.

PLEASE state Gauge required when ordering.

Complete blueprint Catalogue, 4d., Post Paid.

New books! "How to Build a Good '00' Loco.", 5/10 p.p. Handbook for "00" 2 Rail Trackwork, 1/6 Post Paid.

John E. Skinley, 132, High St., Southend-on-Sea, Essex

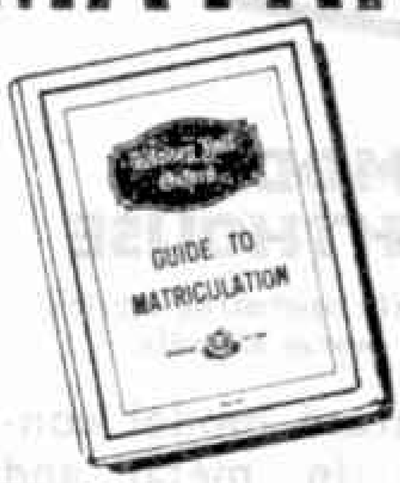
CRYSTAL SET KITS 14/11, post free. Built in 30 mins. Have your own radio. Ideal for winter evenings. Headphones **13/11.**

W. BUCKLE, 77, Horringer Road, Bury St. Edmunds

The British Railway Association caters for all those interested in Railway Locomotives. Write today, requesting full details to: Asst. Gen. Sec., 37, Broadstone Rd., Birmingham 26, enclosing 2½d. stamp.

Twelve high-class CHRISTMAS CARDS, CALENDAR and envelopes 7/6 post free. Satisfaction or money back. **G. E. Farebrother, 53, Woodfield Crescent, Kidderminster, Worcestershire**

STUDY AT HOME FOR MATRICULATION



Wolsey Hall (Est. 1894) will coach you **by post** for London Matric.; School Cert., Engin. Prelim., Lond., B.Sc. Degree, Teachers' exams., etc. Tuition continued **free** if you fail; low fees, instalments, **PROSPECTUS FREE** from Director of Studies. Dept. GK1,

WOLSEY HALL, OXFORD

"MASTER-PIECE"

Parts for 00 Rolling Stock

Ask your local stockist for details or send us TWO LOOSE 1d. STAMPS and unstamped addressed envelope marked MP in top left corner for fine illustrated folder. No letter is necessary.

ERG (Bournemouth) LTD.
691 Christchurch Rd. Boscombe, Bournemouth

If you cannot obtain "Master-piece" Parts send us the name and address of your local model or toy shop.

BOOKS:

"Nameplates," G.W.R. or L.N.E.R., 2/-, S.R.,	1/6
"British Passenger Locos"	3/-
"Layout and Survey" (Beal)	4/6
"Model Railway Hobby" (Binstead)	10/6

RAILWAY ACCESSORIES:	00	0
Hedges, per 12 in.	1/6	—
Metal Fencing	1/3	—
Super Green Grass Paper	1/6	1/6
Scale Coal Offices	3/9	6/6
Petrol Pumps, assorted Colours ..	1/9	2/-
Oil Cabinets	1/-	1/-
Scale Platform Figures .. Each	6d. & 9d.	9d.

Modelcraft and Merco Building Lithos., Exley L.M.S. and G.W.R. Coaches in Stock.

Postage extra. "00" or "0" Parts List 3d. per post.

TYLDESLEY & HOLBROOK (M.E.T.A.)
109, DEANSGATE, MANCHESTER 3

MAKE YOUR OWN RADIO ! ! !

You can make a first-class Radio Receiver or Amplifier if you use a Sparks' Data Sheet to explain, in detail, and show you, by fine full-size Drilling, Assembly and Wiring Plans, how to do it. All designs are guaranteed.

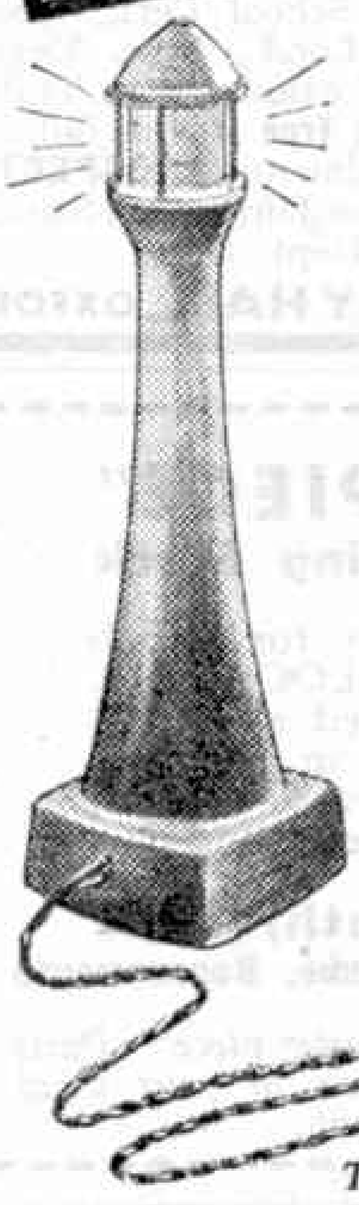
LATEST RELEASE. The Challenger Portable. A powerful self-contained set for A.C./D.C. Mains. M/L Waves, 6-in. Speaker, no aerial or earth needed. Data Sheet, **2/9; MIDGETS** (All-dry batteries), One-valve Portable, No. **MP/1,** M/L Waves, good 'phone sigs., **2/6;** Tiny Two Portable **No. LO/T,** med. waves. Local stations on 2½-in. Speaker or greater range on 'phones, **2/6;** Three-valve Portable **No. LO/S.** A more powerful model, M/L waves, 3½-in. Speaker, **2/6;** Four-valve Portable, **No. LO/16.** Greater range and power, 5-in. Speaker, medium waves only, **2/6. MANY MORE DESIGNS. 34 Data Sheets available covering Mains and Battery Sets and Amplifiers.**

SEND STAMP for **List A.35/47** and with Order.

COMPONENTS CAN BE SUPPLIED.

SPARKS' DATA SHEETS
9, Phoebeth Road, Brockley, London S.E.4
('Phone: Lee Green 0220)

Selfridges



MODEL LIGHTHOUSE

fitted with operating switch for morse signals.

An accurate model constructed in metal and spray finished in correct colours. The lamp house shows two colours Red and White. Height 10½". Base 3½" square. 2-foot length of insulated wire supplied complete with battery. Price **12/1**

Post & Pckg. 1/- extra.

Toys: Third Floor.

SELFRIDGES LTD., LONDON, W.1. MAYfair 1234

WILMSLOW MODEL COMPANY

WATER LANE, WILMSLOW, CHESHIRE

Your mail order by return of post.

We have a tip-top selection of model railway and aircraft kits and accessories. Railway kits in "00" and "0" gauges. Ships kits, model racing car kits. Diesel and Petrol Engines. The largest stock of modelling materials in the North.

Send 3d. stamp for new Autumn 8-page list.

****** THE IDEAL CHRISTMAS GIFT ******

Boxed notepaper and envelopes (including linen-faced), attractively PRINTED from 5/6. Particulars and sample: **G. E. Farebrother, 53, Woodfield Crescent, Kidderminster**

35 mm. films. All descriptions from 6/-. Baers, 176, Wardour St., London W.1. Hire Programmes 10/-.

SHORTHAND in One Week. Test lesson 3d. DUTTONS (MO), 92, Gt. Russell Street, W.C.1

READERS' SALES AND WANTS

SALES

"M.M.'s," October 1945 to March 1948 (October 1947 cover torn, September 1947 missing), good condition; also 36 Foreign Coins; 400 Stamps in Album, what offers?—A. L. Milward, 53, Penn Street, Belper.

Dublo Electric and Hornby Gauge 0 Clockwork Engines, Rolling Stock, Rails and Accessories for sale. Send for list. Prices reasonable.—Loades, Barnards Green, Gt. Malvern.

Over 300 "Dandies" and other Comics £1; 28 "Aeromodellers," 10/-; 130 "Aeroplane Spotters," up to present issue, 15/-; "M.M.'s" February 1942-present day (one missing), and 8 large others, 25/-; 30 "Aeroplanes," "Flights," etc., 8/-; 65 "A.T.C." and "Air Reserve Gazettes," to present day, £1. Various aeronautical books and photos., all perfect condition. S.A.E. for list. Also 26 in. cycle speedometer, as new £1.—9, Calais Road, Burton-on-Trent.

MECCANO MAGAZINE

Registered at the G.P.O., London, for transmission by Canadian Magazine Post.

EDITORIAL AND ADVERTISING OFFICES:

LIVERPOOL 13, ENGLAND.

Telegrams: "Meccano, Liverpool."

Readers' Sales and Wants. Private advertisements (i.e., not trade) are charged 1d. per word, minimum 1/-. Cash with order. Readers' advertisements are published as soon as possible; inclusion in the first issue after receiving them cannot be guaranteed.

"M.M.s," 36 copies from December 1927 to November 1937; January 1938 to present date (one missing). Also 12 Curved and 6 Straight Hornby Tinplate Electric Rails 2 ft. radius. All good condition. Offers to—Hurst, 26, Trowell Avenue, Wollaton, Nottingham.

Magazines, Books and Stamps (many new issues) 2½d. for List.—G. W. Wilson, 17, Ferrers Avenue, Wallington, Surrey.

Gauge 0 Hornby Clockwork Railway, Rolling Stock, Accessories, List supplied.—Box 438, Smith's Bookshop, Pangbourne, Berks.

New Hornby Dublo Rails, 4 Curved and 2 Straight, also Buffers 13/6.—Ford, 17, Windsor Avenue Gosforth, Newcastle.

"M,M.'s," 1942–1947 inclusive (July 1945 and Oct. 1947 missing), excellent condition. 25/- or separately 6d. a copy.—Pickford, 6, Roman Drive, Leeds 8.

Complete Gauge 0 Electric Railway, send stamped addressed envelope for full details.—A. Cook, 44, Wilmot Road, Dartford, Kent.

"M.M.'s" Jan. 1946—Dec. 1947 (Sept. 1946 missing). Also "Boy's Own" 1947 complete. All perfect. Offers?—Box 999, Dixon, Dun Laoghaire, Co. Dublin.

Dublo Train Set, comprising: one Electric Streamlined Locomotive, three Clockwork Tanks, Coaches, Wagons, Points, Clockwork and Electric Rails, Signals, Signal Boxes, Transformer and Controller, £20. Send S.A.E. for list.—Warburton, 14, Moorpark Road, Northfield, Birmingham 31.

Electric Hornby Dublo, purchased 1940. Passenger Train, Goods Train, additional Carriages, 14 Goods Wagons, Goods Depot, Engine Shed, 60 Straight and Curved Rails, 13 pairs Points, Electric Signal, Isolation Rails, Buffer Stops, Double Output Transformer and two Controllers. Sale in part or whole. Address—Group Captain Lang, c/o Midland Bank Ltd., 95, Gloucester Road, London S.W.7.

Hornby Train Set consisting: 19 Curved Rails, 13 Straight Rails, 1 Level Crossing, 1 pair Buffers, 2 pairs Points, 1 Engine, 1 Pullman Carriage, 1 Tipping Wagon, 36 Clips, good condition. Price £5.—D. Langley, Crouch House, 34, High Street, Rickmansworth, Herts.

Sale of Meccano Parts. Breaking up large collection. Parts of all kinds: Motors, Gear Wheels, Transformers, etc. Post orders undertaken. Write Box "U.U.," c/o 95, Bishopsgate, London E.C.2.

"M.M.'s.," Jan. 1942—Dec. 1947; complete and in perfect condition. Also pre-war Meccano Outfit No. 6 with extra Gears, Sprockets, etc., and two 1a Clockwork Motors. Also small Stationary Steam Engine. Offers to G. F. Salt, "Woodruff," Windermere Road, Hightown, Liverpool.

Twin Cylinder Stationary Steam Engine, recently purchased. Highest offer secures.—Dobbins, Chard School, Somerset.

WANTS

Hornby Dublo Electric Track, Coaches and Trucks, in good condition; will buy small quantities. State price.—Bateman, 2, Westminster Crescent, Clayton, Bradford.

Dublo, Trix or Hornby Trains and Accessories.—Gegarty, 38, Poulter Road, Liverpool 9.

HORNBY TRAINS

"Quick Dad—Points!"

Loads of Fun

Every minute spent playing with Hornby Trains is brimful of thrills and enjoyment. Hornby Trains are strong-pulling, long-running, tested and guaranteed.

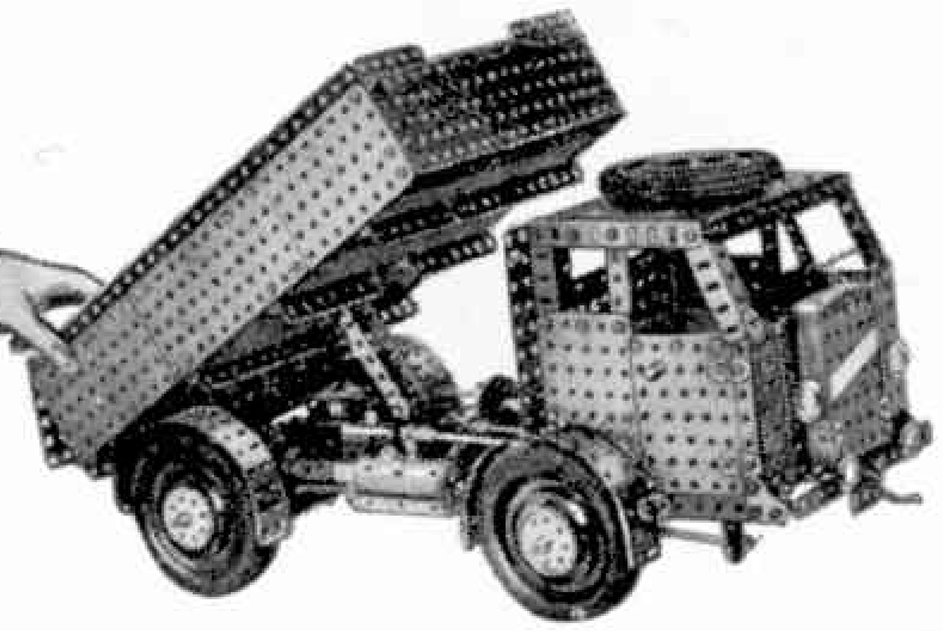
Prices of Hornby Gauge '0' Clockwork Train Sets from **18**/– including tax.

Obtainable ONLY from Meccano Dealers

MECCANO

Engineering for Boys

Every boy is happiest when he is inventing, creating and constructing—that is why boys still find Meccano the most fascinating hobby in the world. There is nothing like it for young engineers who are keen on developing their own ideas.



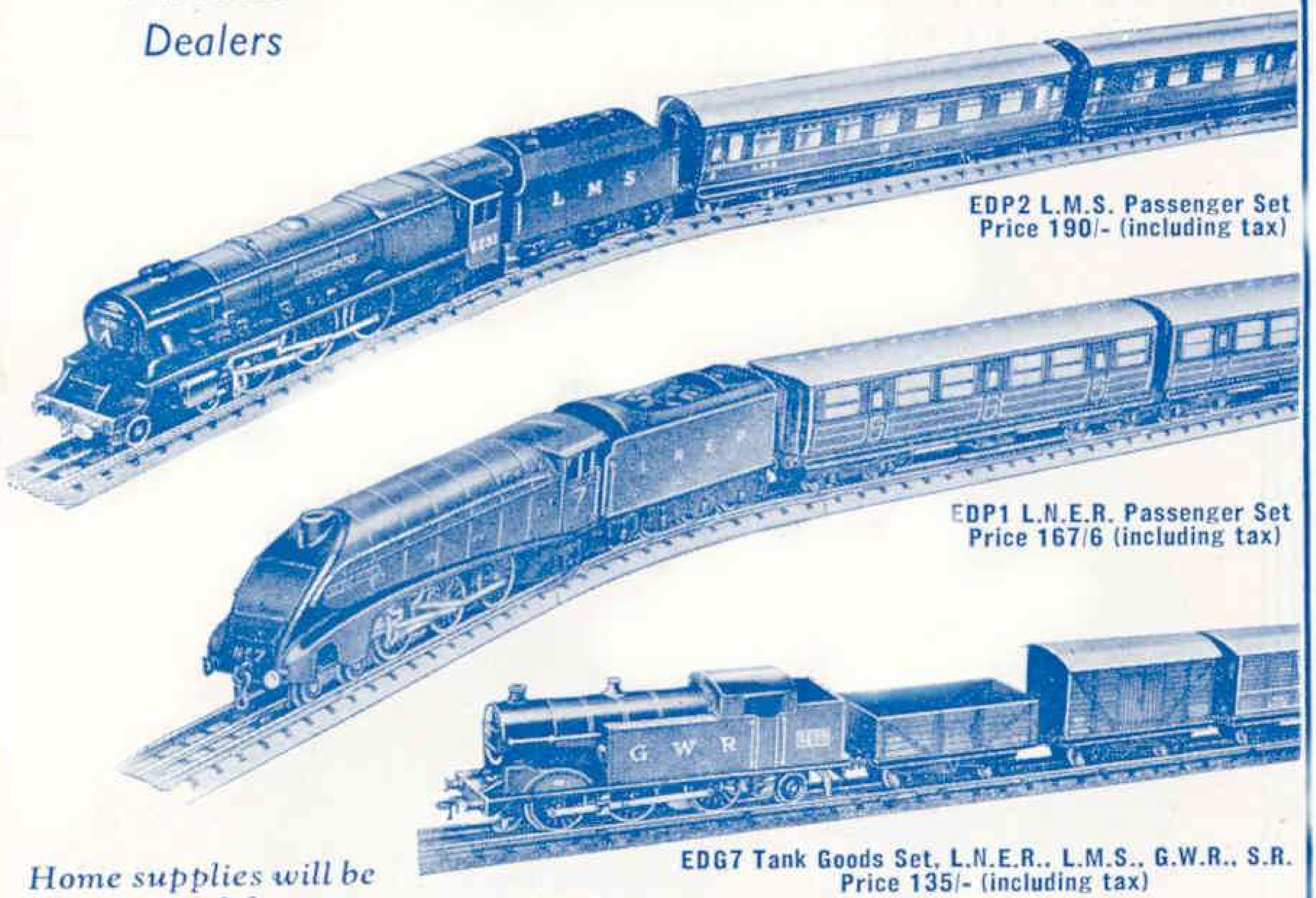
Complete Outfits from **6'6** inc. Tax

MADE IN ENGLAND BY MECCANO LIMITED

HORNBY DUBLO ELECTRIC TRAINS

Obtainable ONLY from Meccano Dealers

Larger and more varied supplies of these fine trains will be delivered to our dealers in the Autumn. We are sorry that they cannot be made available before then.



EDP2 L.M.S. Passenger Set
Price 190/- (including tax)

EDP1 L.N.E.R. Passenger Set
Price 167/6 (including tax)

EDG7 Tank Goods Set, L.N.E.R., L.M.S., G.W.R., S.R.
Price 135/- (including tax)

Home supplies will be very limited because Export must have preference.

MADE IN ENGLAND BY MECCANO LIMITED

PUBLISHED BY MECCANO LTD., BINNS ROAD, LIVERPOOL 13, ENGLAND.
Printed by John Waddington Ltd., Leeds and London